

THE MEDICAL AND SURGICAL REPORTER.

No. 1819.]

PHILADELPHIA, JUNE 10, 1882.

[Vol. XLVI.—No. 23.]

ORIGINAL DEPARTMENT.

COMMUNICATIONS.

ATROPIA—SOME POINTS IN ITS PHYSIOLOGY AND THERAPEUTICS.

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Like the plant from which it is derived and of which it is the active principle, atropia is anodyne, antispasmodic, diuretic, antisudorific, and also a powerful cardiac and respiratory stimulant. A remedy having such a wide range of action must become valuable in its therapeutic applications. It must also, of necessity, have a wide range of physiological effects on the human system. The gross effects are noted, as fullness of the brain with blood, fullness of the peripheral surface everywhere, greater activity of the general circulation and especially that of the capillary circulation of the skin; there is mental hebetude, mydriasis, dryness of and a feeling of constriction about the fauces. When the dose is very large it produces some pain in the head, vertigo, dimness of vision from the admission of too much light through the dilated pupil, flushed face, turgidity of scalp and head, difficult deglutition, wakefulness, dryness of skin, with a scarlatinal rash, increased urinary secretion; there may be also considerable delirium, and finally, convulsions and unconsciousness. The pulse becomes very rapid and forcible until the vital powers are overcome, when it grows gradually weaker. The respiration is also much increased in frequency. In many cases there is increased peristaltic action, with griping. The mucous surfaces are everywhere dry. In females poison-

ous doses are apt to produce a catamenial flow, more or less free.

From these gross effects of atropia we propose to turn to view some of its influences over secretion, the circulation and respiration, and through these look a little to its therapeutic applications.

This agent produces its effects either through stimulating the sympathetic system of nerves or by more or less complete paralysis of the organic system of nerves. In the matter of the secretion of saliva. Nothing is better known, perhaps, than the fact that atropia checks its flow; stops it entirely in full doses. How does it do this? By producing paralysis of the chorda tympani nerve, which belongs to the organic system, and which regulates the secretion of the submaxillary gland. It is, in some sense, a compound nerve, having two sets of fibres, one of which acts upon the gland cells, causing them to secrete saliva. The other set of fibres induces dilatation of the arteries of the gland, and thus supplies blood more abundantly, from which saliva may be drawn by the cells. The failure of this secretion under the power of atropia is not due to the vaso-inhibitory fibres of the nerve. It is due solely to paralysis of the secretory fibres. This was shown to be so by Heidenheim, who found that when the chorda tympani was irritated after the use of atropia no saliva is secreted by the submaxillary gland, but its vessels become dilated as usual. This experiment showed clearly the existence of two sets of nerve fibres in the chorda tympani nerve; one set controlling the blood supply, the other, cell action. It was found also that irritation of the sympathetic caused a return of the secretion after the use of atropia. The

termination of the sympathetic filaments "must therefore have a different relation to the secreting cells from those of the chorda tympani." It is through its influence over these nerves that the secretion of saliva is controlled by atropia. The increased flow of urine under the use of atropia is largely due to increased blood pressure on the glomeruli of the kidneys, but partly owing to an increased flow of blood through the organs. It will be noted further on that the action of the heart is accelerated and its force of contraction increased. This would naturally increase the quantity of blood driven through any of the interal organs in a given time, and therefore, among others, increase that to the kidneys. This would give opportunity for the glomeruli to extract an increased quantity of urine from the increased flow of blood through them. But no doubt no inconsiderable difference in the quantity of urine discharged under the use of atropia is due to the diminished power of perspiration. The complementary play of discharges between the skin and urinary organs is well known to all physiologists. The increased diuresis under atropia, then, may be accounted for (a) by increased blood pressure, (b) by increased flow of blood through the kidneys, and (c) by the diminished perspiration.

Here we see the influence of atropia over the organic and inorganic systems of nerves as plainly as in that over the salivary secretion. We sometimes meet with cases of impending death from uræmic poisoning, where the blood-pressure is very low, the heart action feeble, and capillary circulation sluggish. In such cases a full dose of atropia hypodermically is worthy of a trial, for effects on the kidneys, provided there is not a weak heart that forbids it, because of the increased strain it would bring upon its walls. Atropia has a most marked influence over the circulation of the blood. This influence is exerted by the power this agent exerts over the nerve centres primarily, and through them, over the heart and vessels. The manifestations of the effects of atropia over the capillaries through the vaso-motor system of nerves is apparent to every one who has ever taken or administered full doses of it, in health or disease.

Its influence over cardiac movements is effected through the pneumogastric as its inhibitor, on the one hand, and the accelloratores, on the other. The balance of power between these nerves in their influence over cardiac action, in good health, is equal. The pneumogastric arises close behind the olivary bodies in the medulla, and, after its exit from the skull, descends the neck to the

inhibitory ganglia of the heart. It is the nerve that inhibits the heart's action, slows or checks its movements. Physiologists have clearly demonstrated this fact by experimentation. They have uniformly observed that irritation of the pneumogastric at its centres, in its course, or in its final peripheral terminations, produces a diminished number of cardiac contractions. We sometimes meet with cases where persons have been greatly shocked by a light blow on the stomach, or over the solar plexus. Sometimes the pulse is rendered very slow by such blow, or it may be stopped altogether, death resulting instantly. The reason is apparent. The impression is carried up to the nerve centre of the pneumogastric in the medulla, via the sensory nerves and spinal cord. The nerve centre in the medulla transmits a strong impression along the nerve, or the nerve is strongly stimulated. It, therefore, acts with more than its normal power. Being an inhibitory of the heart, this stimulus, therefore, causes it to more or less suddenly slow or entirely check the heart's action.

Blows and injuries to the abdomen are not alone in their reflex influence over the pneumogastrics. Any injury anywhere produces, through reflex action, a similar but not so powerful an effect. Hence it is that sharp stings or severe pain influence cardiac action. And we find the contractions increased in number and force, or slowed, according to the impression conveyed through the reflex sensations carried to the cardiac nerves.

It is well known that if the pneumogastric nerve is divided in the neck, the heart runs rapidly; and that if the divided nerve be irritated, the action of the heart is slowed very much. This shows that the power to inhibit cardiac action is seated in the medulla, and that the vagi are the nerves through which that power is transmitted to that organ to regulate its action. One of the functions of this great nerve, then, is to slow the heart, keep it in bounds as to its rapidity of action. It is, in some measure, to the heart like the governor to the steam engine. Any remedy, therefore, that stimulates, or gives increased tone to it, will slow the action of the heart. Among these agents we have, foremost of all, digitalis, which gives strength to the heart, while veratria, muscarin, etc., may slow the heart without giving increased strength; in fact, may weaken its power of contraction.

But we have also nerves that increase the rapidity of the heart's action, and stand opposed to the sway of the pneumogastric—the accelloratores. These also arise in the medulla, and

passing down the spinal cord with the vertebral artery, emerging "through the last cervical and first thoracic ganglion, and passing to the heart, probably end in the excito-motory ganglia. Some accelerator fibres sometimes pass through the cervical sympathetic of the heart. They are the antagonizing nerves of the vagi, but unlike the vagi, are not constantly in action." (Arch. Dixon, Henderson, Ky.)

The cardiac function of the vagi is to regulate or slow the heart, while the accelerators increase its rapidity of motion. Over these nerves atropia exerts a marked influence. Perhaps it were better to say this agent exerts marked power over that portion of brain and spinal cord that give origin to these nerves, and those sympathetic ganglia that have in some measure control over the heart, and also control over the contractility of the blood vessels, great and small, especially the latter.

It has been clearly set forth and demonstrated that the nerves controlling the calibre of the vessels are compound in their character. These are the vaso-dilators and the vaso-constrictors. These are made to act under stimulus, so as to either dilate or constrict the vessels, especially the capillaries, according to the character of stimulus applied, and the manner of its use. It is now well known that we have many remedies that produce these effects. For instance, ergot effects contraction of the capillaries. Its therapeutic uses are thus often plainly indicated. Others produce dilatation and are used accordingly. Few remedies exert more power over the vaso-motor system of nerves than does atropia. This effect renders its therapeutic uses of very great importance. Hence, the need of their study and comprehension for daily use. We know of no clearer setting forth of the course and functions of these nerves than that given by the writer above named. (*Indiana Medical Reporter*, January, 1880.) "The vaso constrictor and vaso-dilator nerves emerge from the spinal cord through the spinal nerves; the constrictors being limited to the vaso-motor centre in the brain. This centre, according to Ludwig, is situated between the calamus scriptorius and the corpora quadrigemina, and from it fibres arise and pass down the spinal cord, emerging as follows: For the head, instead of passing directly, they go through the cervical sympathetic to the blood vessels of the ear, face and pia mater; for the upper extremities, through the sympathetic and brachial plexus; for the lower extremities, through the lowest spinal nerves and sacral plexus, and in the trunks of the anterior roots

of the lowest lumbar and sacral nerves to the sympathetic, and thence to the lower extremities; for the cavities of the nose and mouth, through the trigeminus; for the abdominal contents, through the splanchnics, which are the most important of the vaso-motor nerves." It will be seen that every part of the system is connected with both the organic and inorganic systems of nerves. The constrictor ganglia that hold the calibre of the capillaries under control are everywhere present and ready to exert their power. Indeed, the exertion of this power is constant, and any failure of it permits dilatation of the capillaries and lowered blood pressure.

There is one other nerve to which we wish especially to refer at this time, the "depressor" nerve of Cyon and Ludwig, named for its discoverers. Its power is far reaching. It has influence over the whole vaso-motor system. It arises from the pneumogastric by one root, and from the superior laryngeal by the other root, and sends its fibres largely or altogether to the heart, in which they terminate, but the manner of their minute distribution is not yet fully known. When irritated it "inhibits the vaso-motor mechanism supplied by it," (*loc. cit.*), and "paralyzes the main vaso-motor centre in the brain, and thus causes the whole capillary system to dilate" (*loc. cit.*). When it is divided and then irritated the capillaries everywhere dilate, especially those of the abdominal organs. Of course blood pressure is at once reduced by diminished resistance to its passage through the capillaries. It will be seen that the superior laryngeal nerve is a branch of the pneumogastric, the first one given off in the neck. It "is the nerve of sensation to the larynx" (Gray), and arises from the middle of the inferior ganglion of the pneumogastric. This "depressor" nerve of Cyon and Ludwig is, then, essentially derived from the pneumogastric. Its great power over the vaso-motor system of nerves must be referred back to the seat of the origin of these special fibres in the brain, the nerve itself being only the medium through which such power is transmitted to the parts and nerve centres influenced by it. Any agent that would stimulate this nerve, or the seat of its origin, would inhibit the vaso-motor tract, over which it exerts a powerful influence. From what has been before stated of the power of this nerve, the agent would also paralyze the whole vaso-motor centre in the brain, and thereby permit or produce dilatation of the capillaries in general. Does atropia have any special power over this nerve? If atropia should paralyze this nerve, there would be general dilatation of the

capillaries. It seems to me that atropia does not exert such action, for it stimulates in a marked degree the vaso-motor centres of the brain, and produces contraction of the capillary system of vessels.

The action of this nerve, however, over the circulation of the blood may, at times, of necessity, be exceedingly salutary. We have said that the pneumogastrics may be looked upon as the governors of the heart's action, in some measure like that of the governor of a steam engine. On the other hand, the "depressor" nerve of Cyon and Ludwig may be looked upon, as Foster has said, in the light of the safety-valve of the engine. "When the heart is surcharged with blood, the impression is carried by the depressor nerve to the vaso-motor centre" (*loc. cit.*). This it paralyzes, and allows the capillaries to dilate and receive the excess of blood. In this way the overstrained heart is relieved of its surplus of blood, cardiac dilatation or rupture is prevented, and when the cause of the disturbance is removed, the balance of power is restored and the circulation runs normally and smoothly again. Indirectly, then, this nerve has much to do with the influence exerted by atropia and other vaso-motor stimulants.

Atropia is a powerful cardiac and respiratory stimulant. It stimulates the accelerators, the function of which is to increase the action of the heart. But it also paralyzes the vagi, and thus the cardiac contractions are rapidly increased. The blood pressure is at the same time raised, because atropia stimulates the vaso motor centre in the brain, which the nerve transmits to the peripheral ganglia, thus securing contraction of the capillaries through their constrictor fibres. When there is thus a general contraction of the capillaries with increased cardiac action, the rise in the blood pressure necessarily results. This agent also paralyzes the splanchnic nerves. This would permit dilatation of the capillaries it supplies, but for the fact that the constrictor fibres are supplied with stimulus or are stimulated to action by the vaso-motor centre of the brain, and thus the blood pressure is kept up.

It will be seen that large doses of atropia would be liable, through the mode of action above pointed out, to throw an overplus of blood upon the already stimulated and rapidly contracting heart. If this overplus be permitted to continue its accumulation in quantity and pressure of blood on the heart, that organ must either dilate its cavities to receive the excess as it rushes into it or its fibres must give way. Cardiac rupture and death would be the immediate result.

Here we see the value and beauty of the part played by the "depressor" nerve above referred to, for when this centralization of blood pressure is felt at the heart, an impulse is sent up this nerve to the vaso-motor centre in the brain, and by producing paralysis of that centre the stimulus of the vaso-motor constrictors is lost, and there results dilatation of the capillaries, especially of those under the control of the splanchnic nerves. This dilatation permits a large retention of blood in the capillaries, and thus the overplus of blood at the heart with its excessive pressure is removed and death prevented. The great importance of this depressor nerve and its action as a safety valve is thus clearly brought out. Dr. Dixon (*loc. cit.*) tersely sets forth its action thus: "If the heart be surcharged with blood an afferent impulse is sent up the depressor nerve to the vaso-motor centre and an efferent impulse is sent down from it through the constrictor fibres of the splanchnic, paralyzing them, and dilatation at once takes place." Safety is thus brought where death was imminent. In this instance we see, as in many others, the conservative and self-protecting powers of the human organism.

That atropia is a powerful cardiac and respiratory stimulant has already been stated and is well known. Great use may be made of this important fact in its therapeutic application. In the administration of anæsthetics great trepidation is felt on the part of the giver and receiver of the agent, for no one can tell whether the patient may come out of its power in safety, or be landed in eternity while yet unconscious. It has been the habit of the writer, for years, to give a hypodermic injection of atropia— $\frac{1}{10}$ to $\frac{1}{20}$ grain—before using anæsthetics. He has not only had no cause to regret this practice, but has been highly pleased with it. Von Graefe recommends the same practice. It in no way interferes with the anæsthetic, but it does help to maintain the cardiac and respiratory functions while anæsthesia is present, and for some time after it passes off. I have often noticed in cases where great shock is present, and where it is desirable to anæsthetize the patient in order to operate, that a pretty full dose of atropia hypodermically given ten minutes before using the anæsthetic will bring up the fullness and force of the pulse, deepen and regulate the respiration; and this effect is not lost when the anæsthetic is brought to bear in its needed power to prevent suffering during the operation.

As a remedy in severe shock, where there is feeble circulation, cold extremities, pale surface,

and sighing or difficult respiration, we know of no agent equal in power and of as great value as atropia sulph. used hypodermically. The same may be said in reference to the collapse resulting from cholera, cholera morbus, or sudden loss of blood. I have seen cholera patients that had been given up to die rally in half an hour under the hypodermic use of $\frac{1}{16}$ grain of sulph. atropia, so as to be pronounced out of danger by those who had considered them as good as dead before its use. I know this is strong language, but I also mean all I say. These happy results are brought about by the power this agent has as a cardiac and respiratory stimulant and through its influence over the capillaries, through the vaso-motor system of nerves.

In some cases of sunstroke, where there is a marked tendency to apoplexy, and where the pulse is somewhat hard, but irregular, and the respiration is labored, and where there may be great doubt as to whether we should stimulate or use depressing agents, we may well remember that a severe shock has been rendered to the system, under which it is laboring, and that gentle stimulation of the nerve centres is perhaps the safer course. Then, if we remember the marked effects atropia has over the vaso-motor nerve centres, and its tendency to distribute the blood equally in all parts of the system, I think we will find in its careful use a most valuable and safe remedy. This effect may be had by repeated small doses of atropia, hypodermically given, until its effects begin to be apparent. In this class of cases alcohol is unsafe; venesection is dangerous, especially in drinkers. Atropia is, at least, safe, when discreetly managed.

Advantage may be taken of these effects of atropia in some cases of sunstroke. It is, however, not a remedy to be injudiciously used, or used without clear discrimination in these cases. Where there is a strong apoplectic tendency, shown by turgescence of the head, and a hard, full pulse, and heavy, deep respirations, this is not the remedy needed. But in many cases of sunstroke there is present an irritable stomach, nausea, vomiting, cool extremities, small, weak pulse, difficult respiration. In these cases the pathological condition is that of prostration, and the tendency to death is by asthenia, or swift failure of life from prostration. The nerve centres are overcome and death is imminent. In these cases it is the common practice to give alcoholic stimulants—generally a very good treatment, and one that has averted impending death in thousands of cases. But it has no doubt been the experience of many, that in some of these cases it

is quite impossible to obtain the stimulant effects of alcoholics in any form, on account of the irritable condition of the stomach. No remedy is retained, and life ebbs away, while we stand powerless to secure the needed stimulant effects of any agent by way of the stomach.

In such cases, atropia given hypodermically has acted most kindly and beneficially. The irritability of the gastric organ does not prevent its administration or its stimulant effects. In a few minutes its stimulant power is made manifest by rendering the pulse fuller and steadier, and the respiration deeper and easier; the capillary circulation is restored to its normal balance, cerebration becomes healthy, and the danger point is so easily past as to be rendered less appreciable than would have been the case under the use of stimulants by the more common manner of administration.

These effects of atropia over the circulation and respiration are what render atropia so valuable in cases of poisoning by opium and its salts, and by muscarin, physostigma, aconite, etc. These have more or less direct tendency to depress the actions of the heart and lungs. Fothergill, at one dose, gave a grain of atropia sulph. to antagonize a lethal dose of opium, in tincture. This is giving a lethal dose of one deadly poison to destroy the effects of a lethal dose of another poison. This was an extreme case, and demanded extreme measures. The result justified the treatment. This case, however, should not stand out as one governing practice in every case of narcotism by opium, for the extreme dose of one grain of sulph. atropia is very deadly and dangerous. But a proper balance may be found in the use of these agents, so that one may antagonize the other, when the poisonous effects of either is observed. I believe Bartholow places the ratio of antagonism at atropia gr. j to morphia grs. xvj. It makes a good formula for hypodermic use.

Professor Frazer found atropia very efficient in restoring the failing circulation and respiration under the poisonous effects of calabar bean. Mr. H. A. Hobbs (*Compendium Medical Science*, July, 1872, p. 46) reports a case of severe poisoning by the ingestion of belladonna liniment. The manifestations of poisoning by this agent were extreme. He used calabar bean to counteract the effects of the belladonna. The effects were prompt and markedly favorable, and recovery occurred quite perfectly in a reasonably short time.

The common uses of atropia in diseases of the eye, and for neuralgia, and asthma, for its influ-

ence over peristaltic action of the digestive tube, and for its power over muscular fibre in general, we have not space now to enter upon. Furthermore, much of this would be needless, as all the profession are, no doubt, well informed as to these common uses of atropia.

A summary of what we have endeavored to set forth as the effects of atropia may be expressed thus:—

(a) It is easily administered; (b) is not an irritant to the stomach or tissues; (c) is a most powerful cerebral stimulant; (d) has special influence over the vaso-motor nerve centres; (e) is a powerful cardiac and respiratory stimulant; (f) and through these effects on the organic and inorganic system of nerves, is a most valuable agent in the profound depression resulting from many forms of disease, and from the shocks of injury and operations; and also, (g) available to prevent the serious results of anaesthesia; and (h) is one of the safest and best stimulants in some conditions resulting from sunstroke.

No agent in general use requires greater care and discrimination in its use, and no one will yield more happy results in well chosen cases. But it is capable of deadly mischief, as well as of great good.

THE FATALITY OF ETHERIZATION IN CHRONIC KIDNEY DISEASE.

BY JOHN B. ROBERTS, M.D.,

Lecturer on Anatomy and on Operative Surgery in the Philadelphia School of Anatomy.

In the MEDICAL AND SURGICAL REPORTER of April 29th, 1882, there appears the following sentence:—

"Concerning the administration of anaesthetics, especially ether, to patients suffering with any form of chronic kidney disease, there seems to be but one opinion, as expressed by all authorities, *i. e.*, that such procedure is, *as a rule, followed by fatal results*; and the weight of testimony confirms this assertion."

This assertion is so at variance with my own opinion, and with my understanding of the views of surgical authorities, that I desire to criticise it, although it was written by a personal friend.

In discussing the statement, I shall endeavor to prove, first, that such an opinion is *not* "expressed by all authorities;" second, that such procedure is *not*, "as a rule, followed by fatal results;" third, that the danger is *not* the same in "any form of chronic kidney disease;" and therefore, finally, that the weight of testimony does *not* "confirm this assertion."

Agnew says*, "Ether may be given with im-

*Surgery, vol. II, p. 288. Philadelphia, 1881.

punity to persons suffering with renal disease." Dr. Henry M. Lyman, of Chicago, the author of a well known monograph on anaesthetics, states, in a more recent publication*, that all diseases which diminish the energy of the heart and of the lungs tend to increase the dangers of anaesthesia, and that various nervous affections augment the risk. He does not, as far as I have found, refer at all to renal conditions affecting the result of etherization. Of course, the frequent association of heart and kidney affections might be raised as a reason for his omitting the latter; but if etherization in connection with chronic renal disease is followed, *as a rule*, by fatal results, such omission is censurable. I regret that I am unable at present to refer to his monograph on Anaesthesia, but the reference given is to a later publication, though possibly it may have been written earlier.

Gross's opinion, published, however, in 1872, is as follows:—"Certain diseases are usually regarded as contra-indicating the employment of anaesthetics . . . but I have myself never allowed any affection whatever to stand in my way."† At this time Gross employed chloroform almost to the exclusion of ether.

Speaking of visceral diseases, Ashhurst asserts that anaesthesia is probably less dangerous in such cases than the performance of important operations without it; hence he does not think its use improper.‡

Erichsen§ in speaking of chloroform, which he seems to prefer to ether, gives as a general rule, that whenever constitutional disease has not advanced so far as to contra-indicate operation, chloroform may be given. He also, however, calls attention to the fact that the most dangerous condition in which to administer chloroform is that in which, from renal disease, the blood is loaded with urea.

Under the discussion of cases in which chloroform is inapplicable, and should be given with hesitation and care, Druitt|| speaks of brain, heart, and lung disease, but makes no mention of renal affections. His consideration of other anaesthesia is very short and does not refer to these matters. Bryant gives similar advice.|| Holmes** only

* International Encyclopedia of Surgery. Vol. I, pp. 412-415. New York, 1881.

† Surgery, vol. I, p. 565. Philadelphia, 1872.

‡ Surgery, p. 74. Philadelphia, 1878.

§ Surgery, vol. I, pp. 45, 46. Philadelphia, 1878.

|| Surgeon's Vade Mecum, pp. 714 and 715. London, 1878.

** Surgery p. 957, American Edition. Philadelphia, 1881.

** Principles and Practice of Surgery. London, 1875. p. 575.

discusses heart affections, and believes it safer to operate with than without anæsthesia. The article on anæsthetics, by Lister, in Holmes's *System of Surgery*, was written too long ago to be adduced by me as evidence, but in the additions made by Dr. J. C. Reeve, in the American Edition, issued this year (1882) I find the statement* that the urine should be examined before etherization, whenever practicable, because in diseased conditions the eliminative power of the kidneys is embarrassed, and "under these circumstances the most unfavorable results are likely to follow the administration of ether."

Turnbull does not mention† renal diseases in the section on "Cases in which ether should not be employed as an anæsthetic" (p. 27); but it is probable that reference will be made to this matter in subsequent editions, for I know he regards kidney troubles as important in this connection.‡

It will thus be seen that Reeve is the only surgical authority who speaks forcibly of the positive character of the danger of death from ether inhalation in kidney disease. He is, I admit, a very high authority, but he does not assert that the danger is so great as to warrant denial of anæsthesia in capital surgery. In fact, he does not raise the question. It appears, from the context, as if his words were made very emphatic rather because he desired to enforce caution, than because he feared that actual death would occur.

Emmet§ lays stress on the danger of etherization in such instances, but does not discuss the subject freely, nor give advice as to the course to be pursued in *protracted* operations. I have not taken the time to hunt up and translate extracts from the German, French, or Italian authorities, because I feel sure that the opinions cited correspond with those of the majority of continental writers. My own opinion is that organic renal disease is a very undesirable complication of anæsthesia, and I have elsewhere said|| that "lungs, heart, and urine should always be examined before the administration, for, though lesions here should not preclude anæsthesia when necessary, the knowledge of such lesions would enforce caution and care."

This is very different from the statement that

anæsthesia in cases of chronic kidney disease "is, as a rule, followed by fatal results."

Ether is often administered carelessly and without proper preliminary examination of the patient, and some practitioners are perhaps unaware of the propriety of a urinary investigation. Still, it is doubtful whether such would be convinced of this propriety or necessity by an unqualified assertion that carried with it the impression of being the result of a not impartial judgment.

2. I next shall try to prove my position that such procedure is *not*, as a rule, followed by fatal results.

Turnbull refers* to statistics which estimate that in Philadelphia there were, up to 1878, 34,980 ether administrations, with no recorded primary death and only one recorded secondary death. Lyman quotes the statistics of Andrews, giving 92,815 inhalations, with but four deaths.†

Chronic disease of the kidney is an exceedingly common affection, especially among those subjected to privation and exposure, and those addicted to alcoholic stimulation. These two classes are particularly liable to injury and disease requiring surgical attention under anæsthesia. It is impossible to believe that in nearly one hundred thousand instances of etherization (even admitting that some were repeated inhalations by the same person), there were only enough patients afflicted by chronic kidney disease to furnish four deaths, if it is true that etherization in such cases is, as a rule, followed by death. Even if we admit that the deaths suppressed or unreported would be sufficient to increase the number given tenfold, it is still impossible that there could be so little renal disease as to cause so few deaths.

It is evident, therefore, that fatal results do *not*, as a rule, follow etherization of patients suffering with renal disorders. It is scarcely necessary to state that nearly every surgeon of large experience has had or seen patients known to have chronic nephritis, who have been etherized with impunity.

3. Those forms of chronic kidney disease which interfere most with elimination would undoubtedly be the most dangerous complications of ether anæsthesia; hence it is not logical to state that patients suffering with *any* form of chronic kidney disease are liable to show fatal symptoms.

4. Enough has been said, I think, to prove to

* Vol. III, p. 553.

† *Advantages and Accidents of Artificial Anæsthesia*. Philadelphia, 1879. p. 27.

‡ See *Philadelphia Medical Times*, June 4th, 1881. Discussion on Roberts's paper on Ether Death.

§ *Gynecology*, 2d Ed., 745-746.

|| *Philadelphia Medical Times*, June 4, 1881.

* Op. cit., p. 48.

† *International Encyclopedia of Surgery*, Vol. I, p. 422.

the reader that the weight of testimony does not confirm the assertion that "such procedure is, as a rule, followed by fatal results;" but that, on the contrary, the testimony of evidence and authority is to the effect that fatal results rarely follow the administration of ether to patients with chronic kidney disease.

That renal affections increase the risk of anæsthesia, I have no doubt, and I feel that anæsthesia is invariably a stage of some danger, and should be looked upon in that light by all administrators. The withholding of ether inhalation however, from patients with renal trouble, when painful operations are necessary or desirable, would be, in my opinion, unjustifiable; because the risk is comparatively slight. The surgeon should always be cognizant of the existence of such a complication; but it need not deter him from etherization, though it should make him exceedingly cautious and watchful.

The sweeping statement of the writer criticised is liable to be used unjustly against professional men, in cases where death occurs under ether so administered. It should, therefore, be refuted, because it has the weight of authority against it, and is not, in my opinion, justified by examination of the evidence.

One year ago I collected* eighteen cases of ether death reported between 1878 and 1880, and since that time there have come to my knowledge three or four additional instances. In a number of these the autopsy showed kidney changes, and such alterations would probably have been found in others if looked for. Therefore, though I might be willing to admit that in ether death renal disease is, as a rule, found, I cannot allow to pass unchallenged the statement that the administration of ether, in patients suffering with any form of kidney disease, "is, as a rule, followed by fatal results."

* Philadelphia Medical Times, June 4, 1881.

ANEURISM OF AORTA.

BY DR. BEAN.

Read before the Philadelphia Laryngological Society.

GENTLEMEN:—In November of 1880 I presented before the members of this Society a specimen of a concealed aneurism of the arch of the aorta pressing upon the left recurrent laryngeal nerve and producing paralysis of the left vocal band in abduction, together with a history of the case and notes of the *post-mortem*. I now have, in connection with Dr. Cohen, a somewhat similar case to present, but am more fortunate in being able to report a more favorable result.

Jacob S., a German, aged 70, by trade a carpet weaver, applied to Dr. Cohen on the 17th of May last, and in his absence was examined by me, for a hoarseness which had lasted since the preceding September, and for which he had been unable to find any relief. He gave the following history: On the 17th of September, 1879, after lifting very heavy rolls of carpet, felt, as he termed it, "a peculiar heavy stroke of the heart and a sense of extreme weakness, so that he came near fainting;" but as this soon passed off he paid no further attention to it.

On the 25th of September, one week later, he felt two strokes similar to the first. Soon after, how soon he does not remember, his voice began to grow hoarse, and gradually grew worse until I saw him, when there was slight dysphonia and voice a falsetto; this latter being due, according to Mackenzie, to the unequal vibrations of the vocal cords, and the abnormal way in which they approximate. For several months, even during the warm weather, he had suffered very much with cold feet; with this one exception his general condition was good; at no time had there been any cough or pain in the throat; no difficulty in swallowing; and up to the time of the impairment of his voice he had been comparatively well.

Laryngoscopic examination revealed paralysis of the left vocal band in adduction; the other appearances of the larynx were normal.

On a physical examination of his chest I found inspiration shrill at junction of the second sternocostal intercostal articulation, as though from the pressure of some intra-thoracic tumor upon the primitive bronchus. Marked dullness over the same region. Could detect a blowing sound about one-half to three-quarters of an inch to the left of the sternum in the second intercostal space, synchronous with the ventricular systole. No thrills could be detected in the infra-clavicular regions. There was no difference in the size of the pupils of the two eyes. The pulse was seventy per minute and feeble; the left radial pulse was scarcely perceptible and about one-fourth of a beat slower than the right. This was also the case with the left brachial artery.

He was examined very carefully the following day, by both Dr. Cohen and myself. Examination of his urine revealed the presence of sugar in considerable quantity; this, Dr. Cohen suggested, was due to reflex irritation on the floor of the fourth ventricle, from the intra-thoracic pressure upon the branches of the pneumogastric nerve. The diagnosis was aneurism of the arch

of the aorta producing paralysis of the left recurrent laryngeal nerve; and the following treatment prescribed: absolute rest in the recumbent position; diet restricted to six ounces of solid and the same amount of liquid food in the twenty-four hours, the latter consisting principally of wine, and iodide of potassium in increasing doses, to ninety grains per diem.

On May 20th, two days after treatment was begun, the pulse was sixty per minute and feeble, while the left radial pulse could not be felt every beat.

On May 22d the left radial pulse was very perceptible, and his feet felt warm and comfortable.

This plan of treatment was followed until the first of July, when, at his earnest solicitation, he was allowed to sit up in an easy chair. At this time the blowing sound in the left second intercostal space could scarcely be detected and the left radial pulse was very distinct. Not doing so well out of as he did in bed, I tried to persuade him to return to the old treatment; this he refused to do, since which time he has been without medical attendance. An examination of his larynx at this time failed to show any change from the condition of the first visit, though the voice had improved in quality and power. An examination made on the 27th of January, 1882, more than six months after treatment ceased, showed no change in the appearance of his larynx; the left radial pulse scarcely perceptible; inspiration shrill in the left second intercostal space, though no blowing sound could be detected. In opposition to my advice he has resumed his work, which requires at times considerable effort, such as lifting heavy rolls of carpet weighing from 140 to 175 pounds each. Although at the time I last saw him, his voice was weak and a falsetto, he assured me that at times it was as good as it ever was. The presumption in the case is that the nerve is adherent to the anterior surface of the artery and still subject to the compression.

Saturnine Neuralgia.

Contrary to the opinion expressed by *Tanquerel des Planches*, that neuralgia, in the true sense of the word, is never met with in cases of lead poisoning, *Dreyfuss* (*Des névralgies saturnines, Par F. Dreyfuss, La France Méd.*) gives a description of two such cases. In the one the neuralgia affected the ulnar nerve, in the other the sciatic nerve. In both the neuralgia existed symmetrically on both sides, as has been observed lately to happen also frequently in persons suffering from diabetes. In the two cases reported by *Dreyfuss* the urine contained no sugar.

HOSPITAL REPORTS.

HOSPITAL OF THE UNIVERSITY OF PENNSYLVANIA.

CLINIC OF WILLIAM PEPPER, M.D.,

Professor of Clinical Medicine in the University of Pennsylvania.

Reported by WILLIAM H. MORRISON, M.D.

THE GALL-BLADDER FILLED WITH GALL-STONES, WITHOUT CAUSING MARKED SYMPTOMS—ASCITES, TAPPING WITH A CAPILLARY CANULA—ACUTE RHEUMATISM, ACUTE ENDO PERICARDITIS.

GENTLEMEN:—The specimens which are now before you were taken from a patient who died a short time ago. He was fifty years of age. He evidently came from a family with poor vitality. Both parents died in early middle life. His mother died from galloping consumption. He was himself married and the father of sixteen children, of whom twelve are dead and four are living, apparently healthy. A number of the children died from consumption. The whole family history is full of evidences of inherited tendencies and proofs of defective vitality.

When we examine his personal history, we find that he had suffered from the ordinary specific fevers of childhood. He had, in addition, always been subject to flatulent dyspepsia, but he did not speak of any attacks of acute pain, nor of any symptoms of habitual biliousness or derangement of the liver. He was much exposed in 1864, while in the army. At that time he caught a cold, and since then he has had a hacking cough. During the past six months the cough was worse, and was accompanied by expectoration and pain in the chest. For the last few months he rapidly ran down in flesh and strength, had fever, night sweats, and the physical signs of advancing softening in the lungs, with the formation of cavities, going through all the stages of a rapidly progressive phthisis, from which he died.

The post mortem examination revealed a large cavity at the apex of the left lung, another at the base of the right lung, and a third about the middle of the left lung. Smaller cavities were found scattered throughout both lungs. There were extensive pleural adhesions, particularly on the right side. The base of the right lung was partially crepitant. We have, here, the history and ordinary symptoms of progressive, destructive, phthisis. I did not bring the lungs before you, as they exhibit, merely in the extreme, the ordinary lesions of this disease.

I have here the liver, for the lesions which it presents awaken questions of great practical interest. This organ is a little under the normal size. It is thicker than natural, and a little wider. It is distinctly paler than normal and both the naked eye and microscopical examinations show fatty degeneration. The capsule is not adherent nor thickened. It strips off readily, showing that there is little or no cirrhosis, although he at one time drank a good deal of liquor.

You will often find fatty degeneration of the liver in phthisis. It is not the only organ that is apt to undergo this change. It also occurs in the kidneys and heart, but the liver is particularly

prone to fatty degeneration. The reasons which may be assigned for this are various. Fatty degeneration is an evidence of defective oxidation. Whatever interferes with the full supply of blood or the carrying of the normal amount of oxygen favors the change in which the more complicated nitrogenous elements, which go to make up the cells, are replaced by the lower grade of hydrocarbonaceous elements which we find in fatty degeneration. The fact that there is in phthisis an habitual interference with the oxidation of the blood, is a distinct cause of fatty degeneration.

Secondly. Patients with phthisis very frequently use large quantities of fats and alcohols, and we know that this leads to the deposition of large amounts of fat in the tissues. When this fact is taken in connection with the depressed state of nutrition, and the inability to maintain the normal type of the tissues throughout the body, you will not wonder that in phthisis we have a tendency to the deposition of fat in place of the normal elements of the tissues. This is most marked in the liver, because it is to this organ that the hydrocarbonaceous matters pass first, from the digestive canal.

There is another abnormal condition about this liver, and one which we were not led to suspect. When I feel the gall bladder, it seems to be full of gall stones. Probably even at a distance you will recognize that the gall bladder has a pearly appearance. In health, the gall bladder presents thin walls, and the bile showing through gives them a dark color. Here, however, the peritoneal covering is evidently thickened. The main bile ducts are patulous, as I can by pressing on the fundus, force out a quantity of healthy looking bile. At the mouth of the common duct I find a large gall stone, and it is past this stone that the bile escapes. I shall now open the gall bladder, so that we can see its interior. I find a large number of gall stones. (There were fifty-one, varying in size from about twelve grains to one grain.) The largest is the one at the opening of the common bile duct. It does not lie directly in the line of the duct, but in a little pouch to one side. Let us first examine the lining of the gall bladder. It is distinctly thickened, but does not show any evidences of ulceration. It is, perhaps, a little roughened, but this has not gone on to ulceration, and the formation of pus. The bile is a little more glutinous than normal, due to some increase in the mucous secretion from the lining membrane.

Now what has caused these gall stones, and why did this man pass so many years without experiencing the least trouble, while others with, perhaps, but one or two little stones, have their lives rendered miserable, suffer attack after attack of pain and not rarely lose their lives in the attempt to get rid of the obstruction?

The frequency of gall stones is connected with at least two different conditions. One of these is the condition of the bile passages. An inflammation in the bile ducts, or in the gall bladder, or in the common duct, causes swelling of the mucous membrane, and retards the flow of bile. The inflammation of the mucous membrane forms a large amount of thick, gluey mucus, and this mixes with the bile, which gradually becomes inspissated, and little nuclei form, around which

deposits occur in concentric layers, and gall stones are formed. This sometimes takes place in the gall ducts in the body of the liver. I have counted as many as a hundred and fifty in the branches of the gall duct.

The second condition is alteration in the bile itself. In consequence of some constitutional condition and disturbance of the function of the liver, the bile is thick, and viscid, and rich in the inorganic coloring matter, which for the most part forms the nuclei of these calculi. A little granule of coloring matter serves as the nucleus, around which fresh layers are deposited. I shall now make a section of one of these gall stones and pass it to you, in order that you may see how they are formed. You will observe the nucleus, consisting of a little stellate body of pigment, almost jet black in color; around this there is a paler layer, formed of cholestrin, and then there are subsequent layers of pigment. The formation of gall stones in the present case has been the result of this latter condition. We have them occurring in a gall bladder comparatively healthy.

We therefore see that gall stones may result from some morbid state of the biliary passages, or from an abnormal condition of the bile which leads to the formation of calculi while the passages remain almost normal. Once formed it is a matter of circumstance how many there are, what shape they assume and to what size they attain. I have counted as many as one hundred and fifty, and I have seen the gall bladder contain a single stone as large as an egg. When there are many they acquire a peculiar shape. They become polyhedral with a number of surfaces rubbed smooth by friction. Sometimes the gall bladder will feel as if it contained but a single mass, but on opening it a large number of stones may be found packed so closely together as to leave no room for the bile.

I mention the faceted condition, as it has an important bearing on the prognosis. I shall first describe the manner in which you look for gall stones. Mix the feces with a large quantity of water and thoroughly stir with a stick. Then place a sieve over another vessel and pour the fecal matter on it, stirring it constantly and washing it through with more water. If a gall stone has been passed you will find it remaining on the sieve. If it is a rounded body we may hope that it was the only one in the gall bladder, and you may make a favorable prognosis as regards future attacks. If, however, you find one or more having these little facets, you may be satisfied that there has been more stones in the gall bladder, and the chances are that there are more present and that the patient will suffer successive attacks of pain until they are all discharged.

When you ask why this man with such a large number of gall stones, so different in size, some small and others comparatively large, did not exhibit spells of biliary colic, what shall I answer? It is possible that some have passed. It is not improbable that the attacks of flatulent dyspepsia may have been associated with the passage of biliary calculi. It is a mistake to suppose that the escape of gall stones is always accompanied by the severe symptoms usually described. It is customary to say that the symp-

toms of the passage of a stone through bile ducts are, violent pain in the region of the gall bladder, shooting through to the back and up to the shoulder, nausea and vomiting, followed that evening or the next morning by jaundice, high-colored urine and putty-colored stools. The attack passes off, leaving behind some tenderness in the region of the gall bladder. These are the symptoms of the passage of a large stone. Time after time have I found gall stones after attacks of sharp pain in the epigastric region, unattended by the slightest jaundice or the presence of bile pigment in the urine or its absence in the stools. In these cases the gall stone has been so small and passed so quickly along the gall duct that it has simply given rise to a transient attack of pain, but the retention caused has not been of sufficient duration to cause jaundice; or else, just as we have here seen, the bile may have been able to escape along the side of the stone, so that there was not at any time complete obstruction. Last spring I obtained from a patient who had suffered from a series of attacks of pain in the epigastrium, which had been called wind colic and which had not been accompanied by jaundice, twenty or twenty-five stones in three or four attacks. I do not know how many stones may have been passed during the two years that she had suffered from these attacks. Whenever a patient complains of obscure pain in the region of the epigastrium, the faeces should be washed and examined in the manner I have described, for it may be a case where small gall stones are passed through a large and healthy duct without giving rise to obstruction sufficient to cause jaundice. In some people the gall bladder is very tolerant of these foreign bodies, while in others a single calculi will cause repeated attacks of colic. I have seen a patient with a single smooth, round calculus who would have, at very short intervals, severe attacks of pain, followed by jaundice. The stone would slip back into the gall bladder and the attack would be relieved. I think I saw him in at least a hundred of such attacks. The stone at last became wedged in the gall duct so tightly that it could not be dislodged, and the patient died. At the autopsy I found a single large, smooth stone. In other cases, as in the one before us, the gall bladder may be filled with stones and yet the patient never complain of any symptoms of hepatic derangement. This tolerance may, perhaps, be explained by the fact that the stones are formed slowly in a healthy gall bladder, in consequence of a morbid condition of the bile, and thus the parts become accustomed to their presence, until finally they remain as though they were normal parts of the body. Still it is unusual, and I am glad to have had the opportunity of calling your attention to it, and of remarking upon the singular differences that exist in regard to the symptoms of the formation of gall stones in different cases.

Paracentesis with a Capillary Canula.

I shall now ask your attention to a very simple mode of performing paracentesis in ascites.

This lady has serious organic valvular disease of the heart. She formerly had considerable albumen in the urine, and occasionally a few tube casts. She has great oedema of the extremities,

and enormous ascites. Her habits are perfectly unexceptional. Her father is living and healthy. Her mother has chronic bronchitis. There is no hereditary disease. She is married, and has had two miscarriages, at the end of the fourth month. I have inquired carefully, but have been unable to find any evidence of infection of the system. Here you see great distention of the abdomen. There is fluctuation on palpation. There is dullness in the dependent portions, resonance in upper part, and alteration of the position of dullness by changing the position of the patient's body. In other words, we have a large effusion, free to move, in the peritoneal cavity. With this there is great oedema.

Under treatment in the hospital, last fall, she was immensely improved. She was placed in bed and given a diet of skim milk for three or four weeks. She was also put upon the use of iodide of potassium and digitalis. Under this treatment her heart came down to a regular steady beat. It is now 80 in the minute, and perfectly regular. Of course, the murmur (a double mitral and aortic systolic) remains. The albumen in the urine has disappeared, showing that it was a congestive albuminuria and not due to true Bright's disease. The oedema of the legs also vanished; but while this was the case, the girth of the abdomen diminished only a few inches. We are now face to face with this chronic peritoneal effusion, which we find somewhat difficult to explain, in the absence of any kidney trouble. It cannot be due to nervous stasis, a result of cardiac weakness, for then the oedema of the legs would not have disappeared. This effusion must result from some trouble within the abdominal cavity. Of course, our suspicions are that it is associated with an affection of the liver; but we cannot determine the condition of the liver, until we have withdrawn the fluid.

A few days ago I drew off some of the fluid for chemical and microscopical examination. This is the report: "Amount of fluid examined, one pint; light greenish yellow in color; specific gravity, 1.020; alkaline reaction; it contains albumen and chlorides, but no urea, no sugar, and no ovarian cells." To-day I propose to repeat this operation, on account of the cardiac trouble. I do not wish to rapidly remove the support which this effusion gives to the abdominal vessels, as would be the case if I used a large trocar. I propose to use this capillary canula and trocar (Dr. Southey's). It consists of a delicate steel trocar, passing through a silver tube which has numerous little fenestra in its sides. A little plate of silver slips over the tube and is held in place by a cap which is screwed in this way, so that there is no danger of the canula slipping into the abdominal cavity. I shall now attach this small rubber tube to the canula, and pass the stilet through the side of the rubber. After freezing, with ice, the point at which I intend to make the puncture, I introduce the trocar and canula, place the lower end of the rubber tube beneath the surface of the water, withdraw the trocar and slip the rubber tube far enough on the canula to cover the little opening made in its side. This will draw off the fluid at the rate of a few ounces an hour. Paracentesis performed in this manner is as simple as a

hypodermic injection. In cases of extensive pleural effusion, where you fear sudden death from a rapid removal of the fluid, this offers an excellent method of operating. In those cases of pleural effusion in which death has occurred during the removal of the fluid, I think, from the reports of the cases, that it was due to too rapid abstraction of the fluid, thus bringing a sudden strain on the lungs.

I shall allow her to remain in bed, and when the abdomen is entirely emptied, I shall have an opportunity of percussing the liver, and determining whether or not my suspicion of some chronic trouble of that organ is correct.

Acute Rheumatism Complicated by Acute Endo-Pericarditis.

We have been receiving a number of Russian refugees lately. They have been unable to speak any dialect with which we are familiar, and we have, therefore, been obliged to diagnose every case by physical exploration.

This very nice-looking lady came in yesterday, evidently suffering with acute inflammatory rheumatism, as you can see at once, by glancing at the left wrist joint. This is like studying the diseases of children and animals. You will often come across cases where, either from the condition of the patient or his inability to speak your language, you will have to depend on the physiognomy, direct exploration of organs, and the use of instruments of precision, in order to make the diagnosis. The wrist joint is not much swollen, but the way in which she holds it is perfectly characteristic. Her temperature is 101.6°. There is a decided mitral systolic murmur, quite loud and rather coarse, supposing it to be recent. There is no aortic trouble. In addition to the mitral systolic, I hear a faint mitral pre-systolic murmur, showing that there is a little roughening as well as insufficiency of the mitral valve. With this there is quite a distinct, churning, friction sound at the point of the heart. We have, therefore, an endo-pericarditis. Pressure over the heart is painful. The hands and the joints of the lower extremities are also affected with the rheumatic inflammation.

What is the treatment? We have moderate fever, acute rheumatic poly-arthritis, and acute endo-pericarditis. The tongue is dry and brownish in the centre. In cases of this kind, where the heart is already affected, I do not like to depend upon salicylic acid or the salicylates. My observation has been adverse to their use in complications of a rheumatic character. In simple acute rheumatism (rheumatic fever with poly-arthritis), I like to try the salicylates, and I give them a fair trial for a few days. If they do not then do good, it is not worth while to continue their use.

In this case the fever is moderate, and does not constitute a serious complication. As long as the fever is under 103°, it is of no consequence. The worst complication is the cardiac trouble, which, unless relieved, is going to leave this woman crippled for life. We must resort to such remedies as will, as quickly as possible, affect the heart. I therefore placed this woman upon calomel, opium and digitalis, giving her quinine, in moderate doses, by the rectum. She has re-

ceived eight grains three times a day, dissolved, by the aid of a few drops of dilute sulphuric acid, in three ounces of liquid. When necessary, it was guarded by a few drops of the deodorized tincture of opium. She was given the following pill:—

R. Hydrarg. chloridi mite,
Pulv. opii,
Pulv. digitalis, aa gr. ʒ. M.
Ft. pil. No. 1.

Sig.—One every four hours.

This will, in the course of four or five days, slightly touch the gums, which is the condition I wish to produce. Over the cardiac region I shall place a blister, four inches square, followed in a few hours by a poultice, and afterwards dressed with diluted resin cerate (resin cerate, 1 part, cosmoline 2 parts). The affected joints will be painted with iodine, morning and evening, and wrapped in raw cotton or wool. She will receive a light diet of gruels, broths, and milk diluted with an equal part of water. Of these she can have as much as she will take. She may also have a little weak lemonade. It will be interesting to watch the course of this endocarditis. Her general appearance is more favorable than we might have expected. The moderate fever and the absence of nervous complications justify us in hoping that we shall overcome the cardiac trouble.

MEDICAL SOCIETIES.

PHILADELPHIA LARYNGOLOGICAL SOCIETY.

Stated meeting, held at Dr. Isaac Barton's, No. 128 South Fifteenth street, on Friday evening, March 24th, 1882. Dr. J. Solis Cohen in the chair.

Dr. John H. Musser exhibited a case of Primary Laryngeal Tuberculosis, of which he gave the following history:—

James Toole, æt. 22, weaver of upholsterers' goods. Smokes moderately: habits good otherwise. Nine months ago hoarseness began and gradually increased, so that, on the occasion of his first visit to me, March 1st, 1882, could not speak above a whisper. There was no soreness, and his general health was very good. Six weeks previous to the first visit he first noticed soreness in the larynx, and in a short time speaking, coughing and swallowing became very painful. The soreness continued as a raw feeling; cough was hacking at times but generally loose, with mucous and muco-purulent expectoration. At times he suffered from dyspnoea; it was worse when going to bed. He lost flesh, and his general health failed; he never had fever. Laryngoscopic examination revealed a congested epiglottis, oedematous false cords, swelling of the mucous membrane of the arytenoid cartilage, with possibly ulceration of the left cartilage. True cords were congested.

Applied, by insufflation—

R. Iodoform, ʒi
Morph. sulph., grs. v
Pulv. acacia, ʒiij. M.

Occasional blister externally. Pain relieved by

the application so that he could speak and swallow without any discomfort; appetite returned, gained in flesh, and his general health improved. Internally took ol. morrhue cum syr. calcia, lacto-phos.

Remarks were made upon the case by Drs. McCoy, McCracken and Cohen. The latter observed that the peculiarity in this case was the disease commencing in the arytenoid folds and extending upward.

Dr. Isaac Barton read a paper on "The Glycerole of Ergot in Chronic Hypertrophy of the Tonsils."

In the discussion which followed Dr. Sajous stated that he had tried both ergotin and iodine by injection into the gland, without result. He

found that the injection would frequently run out of a lacuna.

Dr. Cohen stated that his success with this form of treatment was not favorable, and that he had some fear of it. Of late years he has been using the galvano-cantery with good results.

Dr. A. W. McCoy has for some years made use of London paste, with which he has been successful.

Dr. Isaac Barton, in closing, remarked that he had previously tried both iodine and ergotin without favorable results, as the injected liquid frequently escaped by a lacuna, but that this did not occur with the glycerole of ergot.

GEO. Y. MCCracken, Sec.

612 N. 13th St.

EDITORIAL DEPARTMENT.

PERISCOPE.

Plastic Splints in Surgery.

Dr. Samuel N. Nelson presented an inaugural thesis on this subject to the Faculty of the Medical Department of Harvard University, *Annals of Anatomy and Surgery*, in which he describes the mode of preparation of the various plastic splints.

Starch Bandages were introduced in 1834, by Baron Sentin, of Belgium. The starch is prepared for use by boiling in water a few minutes, and should be of the consistency of that used by laundresses. The whole limb is enveloped in a layer of cotton wadding, which is thickly laid along and over the osseous prominences; a bandage saturated with thick starch is then firmly applied, and others added, according to the strength required. The whole is completed by starching the outside of the last bandage. Until the starch is thoroughly dried, which usually takes from thirty to forty hours, owing to the amount of moisture necessarily included, a temporary wooden splint may be applied to prevent displacement as far as possible. The drying may be somewhat hastened by the use of hot sand-bags. The starch splint is light and inexpensive, and the materials are always at hand. It is, however, sticky in manipulation, and, to give sufficient firmness, usually requires stiffeners, such as pasteboard, hoop-iron or wire. These may be added to any of the plastic splints, but are seldom required with plaster, and only when much additional strength is necessary.

Compared with the plaster splint, starch has the disadvantage of hardening only after many hours, instead of a few minutes, and requiring extension until dry. And, as it contracts in drying, it is not so safe.

Dextrine.—Dextrine, which is preferred to starch by Velpeau, and which is in many respects superior to it, is a substance obtained by the

continued action of diluted sulphuric acid upon starch at the boiling point. It is prepared by thoroughly mixing with it spirits of camphor or brandy, in the proportion of ten to six, and adding four parts of warm water, when the solution will be about the consistency of molasses. The application is similar to that of starch.

Glue and Chalk.—The glue and chalk bandage is recommended by Bryant, who uses equal parts of gum-arabic and precipitated chalk, made into the consistency of thick paste by the addition of boiling water gradually stirred into it. This becomes firm sooner than starch, and is more solid.

Glue.—The glue bandage has been adopted by Mr. C. de Morgan, in the Middlesex Hospital. He uses the best French glue, dissolved in water, to which alcohol is added to induce more rapid drying. The application is similar to that of the starch bandage.

Glue and Oxide of Zinc.—Dr. R. J. Levis, of Philadelphia, introduced to the American Medical Association, in 1876, a dressing made of ordinary glue and oxide of zinc, and said that the glue, by this means, hardens with rapidity. "Too much oxide of zinc must not be added, lest it make the splint brittle and liable to crack." Any kind of texture can be used with the plastic material. This makes a light, neat, firm dressing, and where not much tendency to displacement exists, as in fractures of the forearm, is desirable. It sets slowly, however, as compared with plaster, is less porous, and contracts considerably in drying.

Paper.—Paper splints also serve a useful purpose. They are made by soaking pieces of shaped pasteboard and moulding them to the limb, around which are wrapped strips of stout paper, wet with water or with starch. It is less strong than the glue and oxide of zinc bandage, is slow in drying, and only exceptionally to be recommended.

Silica.—The silica bandage is made of the silicate of potash, or soda, dissolved in an excess

of caustic alkali. The late Dr. T. B. Curtiss, of Boston, reported in the *Boston Medical and Surgical Journal*, for June 28th, 1877, that the silicate of potash is preferable to the soda salt, which requires very long to dry. A coating of the solution is applied with a brush to a dry roller bandage over the limb, and two or three more layers are added, to give sufficient strength. The solubility of the silicate in water is an advantage, for it renders the removal of the bandage easy. It dries quicker than starch, but less quickly than plaster. It is lighter than plaster, but contracts in drying, and is not so safe. It is also very sticky and disagreeable to manipulate.

Tripolith.—Prof. Von Langenbeck recommends tripolith for surgical purposes. It consists of lime, silicon, and oxide of iron. It hardens sooner than plaster of Paris, and when once dry and hard never absorbs any moisture. Dr. Nelson has experimented with this article, and does not find it possessed of the advantages claimed for it.

Plaster of Paris or gypsum, the hydrated sulphate of lime, is prepared for plastic use by slowly heating it to between 212° and 392° F., to drive off the water of crystallization. It combines with water, forming a hydrate, and crystallizes or "sets," becoming in a few minutes quite firm and hard. The plaster must be of fine quality, such as is usually furnished for dental use, freshly calcined and carefully protected from the absorption of moisture from the atmosphere. The kind of cloth employed is of importance, both for the immediate and ultimate success. It must be sufficiently strong and of such a texture as to take up and retain plaster easily. After many experiments with different kinds of cloth, Dr. Marcy has decided that the cheap bleached cotton cloth used for printed calico, meets more of the demands than any other, if used before it has received the dressing. To procure cloth at this stage of manufacture one must go to the bleacheries. It is then free from the vegetable oil with which each fibre was covered, and has not received the filling of earthy and starchy compounds necessary to give the firmness required in finishing, and is equivalent to the surgeon's absorbent cotton. It is the right texture to take up plaster and retain it. It gives the maximum of strength, and when applied it forms a kind of felt, which does not crack, but rather wears out if subjected to friction, as over the heel.

Strangulation, and even fatal gangrene, have been known to follow the improper application of fixed dressings; but this should not prevent their use when their advantages are so very apparent. If it does occur, gangrene is sudden and unheralded.

The patient should be visited within twenty-four hours, and careful inspection of the limb be made. The bandage should be removed at once if there is swelling of the fingers or toes left exposed; if they become purple, benumbed, or cold, the circulation is impaired, and there is compression. Even without these symptoms, continued pain is sufficient indication that something is wrong.

In regard to the time when a plaster splint should be applied, although many able authorities

prefer to wait until after the swelling has subsided, yet there is abundance of evidence, from Larrey, Velpeau, Seutin, Erichsen, St. John, and Marcy, to show that it can be applied immediately after the injury, not only with perfect safety, but with better results. The plaster dressing is applicable to all fractures of the long bones, of the clavicle and ribs, and to acute fractures of the spinal column.

REVIEWS AND BOOK NOTICES.

NOTES ON CURRENT MEDICAL LITERATURE.

—The Special Therapeutic Value of Hyocyamine in Psychiatry. By C. H. Hughes, M.D., St. Louis. A reprint from the *Alienist and Neurologist*, April, 1882.

—Observations on Surgery in Children. By Edward Borch, M.D., St. Louis, Mo., comes to us as a reprint from the *St. Louis Medical and Surgical Journal*. June, 1882.

—Observations on Hemiplegia. By A. D. Rockwell, A.M., M.D. Reprint from *Medical Record*, April 29th, 1882. This is a practical paper, based on the observations made by the author during an extensive experience.

—Galvano-caustic Method in Nose, Pharynx and Larynx. By Dr. J. Solis Cohen, of Philadelphia. This pamphlet, received with the compliments of the author, contains the address delivered by him before the International Medical Congress.

—Preliminary paper on the determination of a standard of color-sense for reflected color by daylight; with a graphic description of the individual limits and average results of sixteen cases. By Charles A. Oliver, M.D., of Philadelphia. Reprint from the *Archives of Ophthalmology*. Vol. XI, No. 1. March, 1882.

—Carotid Compression and Brain Rest. By J. Leonard Corning, M.D., member of the New York Neurological Society. This is a small pamphlet of 39 pages, intended mainly to illustrate an instrument devised by the author, to combat sleeplessness and other conditions where there is too much blood in the brain, by means of compression of the carotids.

—The subject of the diagnosis of Pott's Disease of the Spine before the stage of deformity, is treated of in a reprint from the *Boston Medical and Surgical Journal*, by Dr. V. P. Gibney, of New York city. The writer has had a large experience in this disease, and the cases he records are instructive and merit the attention of surgeons.

THE
Medical and Surgical Reporter,

A WEEKLY JOURNAL,
Issued every Saturday.

D. G. BRINTON, M.D., EDITOR.

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D. G. BRINTON, M.D.,

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A MODEL INFANT ASYLUM.

Few subjects interest the student of public medicine more than the efforts made in various directions to preserve infant life. The special value which attaches to these projects arises from the excessive mortality at that period of life. The first year is by far the most dangerous of any, and the first decade counts three times as many victims as any other. Hence, if we ever expect to bring public health up to what it should be by our theories, we cannot devote too much attention to the hygiene of infancy.

The statistics of all countries show that the percentage of deaths among illegitimate is very markedly higher than among legitimate children. Hence, the former more particularly demand the early attention of the hygienist and philanthropist—for we hope no one who reads this will be found so bigoted and hard hearted as to say that these helpless creatures are the less deserving of care because of the misfortune or sin of their mothers.

This increased mortality is shown, on investi-

gation, not to depend in any way on greater inherent feebleness in these infants—if anything, they are rather more favored in physical, as they often are in mental endowments, than those born in legitimate unions—but to the lack of proper care to which they are subjected, owing to the circumstances of the mother. They are often exposed after birth, or the surroundings of parturition are injurious. Hence no charity could be more called for than one which would diminish the loss of life by preventing these desertions.

Of the various institutions known to us which aim at this result, the New York Infant Asylum appears to us to be based on the most judicious principles. An infant is received, at birth or soon after, with its mother. The latter should accompany it, not only to supply the infant its natural food, but for the moral influence which will be exerted upon her. The names of both mother and child are regarded as absolutely confidential; each is treated with consideration and respect, and not as criminals. The result of this is that in most instances the mother is rescued from a life which, if pursued, would surely end in her moral and physical destruction.

After a period varying from six months to two years, the mother leaves the institution, a proper position, in which she can make a living, having been found for her. The child is then placed with some respectable family, adopted by them, and grows up a respectable and valuable member of society. The greatest care is exercised that such foster parents are persons of good character, who will have a real interest and affection for the child.

In connection with the Asylum, the city department of which is at 10th Avenue and 61st St., New York, there are two "country homes," one at Mt. Vernon, West Chester Co., the other at Flushing, L. I.; to these the infants are distributed, and with the most favorable effects on their health.

The only difficulty which the institution encounters in carrying out its plans is in finding a sufficient number of families of the right kind to adopt the children, and this, no doubt, arises from the ignorance that children can be there ob-

tained for that purpose. As the President, Mr. CLARK BELL, justly observes, in a recent address:

I am fully convinced that if public attention was properly called to the number of children for adoption this Institution can furnish, and be made to see how favorable the legal provisions are for protecting the foster-parent in the title custody of the child, we should easily meet the present difficulty, and enlarge very greatly our sphere of usefulness.

We would ask the attention of our readers to this Institution, and advise them to study its details, not only because we believe it to be a model of its kind, but we think they should aid its work, by letting it be known to respectable families among their patients who wish to adopt children, that they can be obtained under the most favorable provisions from this Asylum.

Those who wish for full particulars may address Mrs. Catherine M. Van Auken, 421 Fifth Avenue, New York City, the lady to whose earnest devotion and intelligent care the Asylum owes both its origin and much of its usefulness.

NOTES AND COMMENTS.

Albuminate of Mercury in Syphilis.

Mr. H. W. White, in the *Glasgow Medical Journal*, May, 1882, relates the histories of four cases of syphilis which occurred in the Glasgow Royal Infirmary, and were treated with albuminate of mercury. In all of the cases secondary syphilis was clearly present, and they all improved rapidly and were discharged well, the first case in about forty-five days, the second in less than a month, the third about twenty-five days and the fourth nearly two months. In this last case there was syphilitic iritis and loss of sight, with an eruption of psoriasis on face, neck and back. He was at first treated with the bichloride of mercury and iodide of potassium, but seemed to get worse, when the injections of albuminate of mercury were resorted to, and he immediately commenced to improve, but, unfortunately, was compelled to leave the Infirmary when he had received but seven injections, and before a cure had been effected. In the first case thirteen injections, equivalent to $1\frac{1}{2}$ gr. of the bichloride of mercury, were given, when, owing to commencing soreness of the gums, it was stopped and iodide of potassium with infusion of quassia substituted. The second case received six, one each night, when the iodide was sub-

stituted. The third received a total of six injections, each one containing $\frac{1}{2}$ gr. of the bichloride. The solution of the albuminate was injected deeply into the deltoid muscles, and no abscess or suppuration resulted. It was freshly prepared every day, by dissolving 2 grs. of the bichloride of mercury in 3j of water; to this a solution of one part white of egg to two parts water was added, until all the mercury was precipitated as an albuminate; a saturated solution of common salt was then added, drop by drop, until the precipitate was dissolved, and the solution made up, so that 5 minims contained $\frac{1}{2}$ gr. of the bichloride.

Undescended Testicle.

At a recent meeting of the Medico-Chirurgical Society of Edinburgh (*Edinburgh Medical Journal*) Dr. Heron Watson showed an undeveloped and undescended testicle which he had just removed from a patient over forty years of age.

The man had recently begun to suffer pain on the side on which the testicle had not descended. He also felt as if some body was endeavoring to come down at the time the pain was worst. The nature of the case was evident when an examination was made. He was, therefore, advised to submit to the removal of the atrophied testicle and sac, and so have the abdominal serous continuation into the inguinal canal cut off, thereby preventing hernia, to which he was liable in that condition. The operation had been done antiseptically, and the case had gone on well.

Iron Ring Around External Genitals.

Dr. R. L. Batterbury thus writes in the *British Medical Journal*, April 29th, 1882: On the evening of March 10th I was summoned to see an old man, aged 66, whose penis and scrotum were enormously swollen and œdematous; and on my inquiring the cause, he pointed out to me that he had an iron ring around the root of the penis, behind the scrotum. He was in a good deal of pain, but had no difficulty in micturition, and he had been trying to remove the ring by filing. With the aid of an assistant I succeeded, after an hour's hard work, in filing through the ring and removing it. To accomplish this we held the ring firmly by means of two strong pairs of forceps, and prevented the file from doing injury to the soft parts by inserting a thin iron chisel between the ring and the skin. The ring was a quarter of an inch thick, and an inch and a half in internal diameter. The account the patient gave was that when gardening, on March 4th (six days previ-

ously) he had dug up the ring, and out of curiosity had tried it on. Finding that he could not remove it, owing to the swelling of the parts, he had unwillingly sent to me. The ring had ulcerated through the skin, causing a deep wound, and imbedding itself partly in the soft tissues. Under the use of hot fomentations and lead lotions, the oedema soon disappeared, and the wound healed.

I may add that there were no signs of insanity in the man.

Chionanthus Virginica.

Dr. John A. Henning thus describes this recent addition to the materia medica, in the *Therapeutic Gazette*. It is a small shrub, growing from 5 to 10 feet high. It is found all the way from Pennsylvania to Georgia, growing mostly in sandy and hilly land. The flowers are almost snow white, the leaves are from 4 to 6 inches wide, and from 10 to 12 long. The fruit is berry-like in appearance and contains the seed. It is also known as snow flower, old man's beard and fringe tree. The bark of the root is the part used for medicinal purposes. It possesses tonic, diuretic and diaphoretic properties, and is a mild aperient. It might be called an alterative, in the true sense of the term, because it promotes nearly all the secretions, without producing debility. It is an excellent remedy in jaundice, and makes a good tonic in that form of dyspepsia where the mucous membrane of the stomach is in an atonic condition, and the liver and small intestines are torpid. Owing to its tonic power over the stomach and other viscera, it may prove valuable in the atonic stages of scrofula and syphilis. It has been found beneficial in herpes, eczema, psoriasis and roseola, but it must be used for a long time in such cases.

However, after repeated experience and close observation with this medicine, I think that in jaundice and hypertrophy of the liver it is reliable in nearly all cases, and doubtless stands at the head of all other remedies for those pathological conditions. Its selecting tendencies are for the liver, kidneys and skin, stimulating those organs to normal action and renewing innervation. To go beyond this, I think we have other remedies that will supercede it.

When we administer any remedy, we must know its action and behavior in the system, and unless we know this, we certainly are practicing more or less empiricism. Now-a-days it is very common, especially with new remedies, to overrate them, and to recommend them in certain diseases in which they have no influence. The

profession should be more guarded, and in giving any remedy, we must closely observe its action and behavior in the system.

Excretion of Nitrogen by the Skin.

Dr. J. Byrne Power, in the *Dublin Journal of Medical Science*, May, 1882, gives an account of experiments performed on himself and others, to determine the power of the skin to excrete nitrogen. This has been a much mooted question among investigators; some holding the ground that the skin does not excrete nitrogen, while others maintain the opposite view. Indeed, in 1858, Funke, by experiments on himself and two pupils, claimed that he not only found nitrogen in the sweat, but also proved its existence there as urea. Dr. Fleming substantiated these results by experiments. As a result of his experiments, Dr. Power believes that under ordinary circumstances the excretion of nitrogen by the skin is very small indeed, even in cases of gout and Bright's disease, where he expected to find it present in larger amount; and, in conclusion, observes that though he found nitrogen to be excreted by the skin in all cases, yet the quantities were so small that he does not believe the cutaneous excretion can ever act vicariously of the renal to any appreciable extent.

This is a very important question in its relation to the rapidly increasing fatality from Bright's disease, and it is a field into which original investigators ought to turn their efforts.

Pelletierium Tannicum.

The alkaloid *Pelletierium*, lately extracted from the cortex *radicis granati*, is, according to Dr. H. Witt (St. Petersburg *Medical Weekly Journal*, April, 1882,) the most certain of all our remedies for tapeworm. In five cases, in which for a number of years all the usual remedies, even extr. felic. marisarth., had proven themselves to be unsuccessful, about twenty-two grains of pelletierium tannicum followed by a tablespoonful of castor oil had the effect that the dead tapeworm appeared unbroken in the stool. The remedy is easily administered, as it is perfectly tasteless.

Hereditary Lead Poisoning.

The *Medical Times and Gazette* says, that Dr. B. Rennert, of Frankfort, claims to have noticed a peculiar form of hereditary lead poisoning, viz., hydrocephalus, or a disproportionate size of the head, but without signs of rickets or any special tendency to convulsions. His observations were made on eleven families, with seventy-nine

children, among the inhabitants of a village in Hesse, where most of the population are employed in the glazing of pottery, and suffer largely from chronic lead poisoning. Half the children died in the first few years of life, and the survivors suffered as described.

CORRESPONDENCE.

Corrections.

ED. MED. AND SURG. REPORTER:—

I find in the abstract of my paper, Subjective Traumatism of the Eye, read at the last meeting of the Pennsylvania State Medical Society, and reported in your Journal, May 20th a few corrections to make.

The statistics are made up from the Reports of the ophthalmic hospitals and ophthalmic work in general hospitals of the leading cities of the United States, not from the *Dublin* hospitals.

In place of Dr. Lorenz read Dr. Loving, and for Dr. Erbmann read Eriemann.

The emmetropic eye should theoretically be healthy, not *structurally* healthy.

The emmetropic eye should be only liable to objective traumatism, not *subjective* traumatism.

Thanks, for the space already granted, and for these corrections. WM. T. LITTLE, M.D.

Expert Testimony.

ED. MED. AND SURG. REPORTER:—

I read your editorial on "Subpœnas to Medical Men," in the number of the 13th ult. with interest. It is all true as to the right of medical men, when subpœnaed, to testify as to matters of fact. But it is not all the truth when expert testimony is called for; in other words, when an opinion is called for which can be given only by a person who has professional knowledge, obtained by long continued and expensive studies, supplemented with large experience, and upon which knowledge the witness is dependent for his support; if the court cannot get along without such testimony, justice requires that it should be paid for in proportion to the value of the witness' time and professional knowledge when employed privately. If expert testimony is not worth this it is worth nothing. When courts need the assistance of a legal gentleman fifty dollars does not secure very much.

I have known a physician on the witness stand in a New Jersey court, while testifying to facts, refuse to answer a question as to his opinion on a medical point, unless he had a fee. He was not compelled to answer, as he would have been in this State. A person should not be obliged to give expert testimony unless paid a proper professional fee. This entire matter is worthy the attention and action of the State Medical Society.

If experts could be called by courts, instead of the parties to a trial, justice would be promoted and the profession elevated. Whoever can bring about such a procedure in our courts will be a great public benefactor. JUSTICE.

Danville, Pa., May 24th, 1882.

NEWS AND MISCELLANY.

Proceedings of the American Surgical Association.

The Third Annual Session of the American Surgical Association was held at the College of Physicians at Philadelphia, beginning on Wednesday, May 31st, and continuing until Friday, June 2d.

WEDNESDAY, MAY 31ST.

The meeting was opened by the President of the Association, Professor S. D. Gross, M.D., LL.D., D.C.L., with the following remarks:—

Gentlemen of the American Surgical Association, the Executive Committee in charge of this meeting, which I now formally open, has assigned to me the pleasing duty of welcoming you to our city. It would be needless for me to multiply words, but this I may say, that as true and loyal members of our profession we should spare no efforts to pass the time agreeably and profitably.

A union like this may be looked upon both in a practical and in a social aspect. As you will see from the programme placed in your hands by the Executive Committee, the first object has not been overlooked, and that abundance of work has been provided.

Hardly less important are the social features and the cultivation of kindly feelings. If our meetings were only for the discussion of scientific papers and the presentation of cases, they would indeed be cold and tame, if not heartless affairs. There is a wealth of feeling in a savory lunch, a stately pillow, a kind reception, a glass of generous wine. The Executive Committee have laid full stress upon these points. Owing to the amount of work and the limited time, they have made no arrangements for steamboat excursions, drives through our beautiful park or for visits to Cape May or Atlantic City.

The question has been asked, perhaps pertinently enough, what need is there for such an organization as the American Surgical Association? The answer to this question is not difficult, at least, I do not find it so. We have in the United States no fewer than sixty thousand medical men; among these there are a large number of surgeons, whose knowledge and skill would do honor to any country. To unite these men into one harmonious whole, for the benefit of all, is one of the main objects of this Association. Our object is not to interfere with the American Medical Society, but we wish to strengthen that body, to rouse it from its Rip Van Winkle slumbers and infuse into it new life. We cannot injure it. We can only injure ourselves if we fail to do our duty.

We live in a fast age. Progress everywhere stares us in the face. The surgical profession was never so busy as it is at the present moment, never so brilliant, never so full of bold expedients, never so beneficent in its results. Many of our best men are busy in perfecting our knowledge. Theory is giving way to fact. The whole field of surgery, from the structure of a boil on a man's face to an amputation through the hip joint, is undergoing revision. The progress of surgery challenges the respect

and admiration of the world, and although it has not reached its finality, it is as near perfection as we can hope to make it. Surgical pathology was never so sedulously and successfully cultivated. The importance of physiology to the practice of surgery is daily becoming more apparent.

Since our last meeting, death has been busy. Some of our best and most esteemed men have fallen by the wayside. There are seats in this Association which will never again be filled. The list comprises, Wm. Warren Green, of Maine; Hugh W. Brock, of West Virginia; John W. Wood, of New York; John T. Hodgen, of Missouri; and J. C. Hughes, of Iowa. To these may be added the name of H. Lenox Hodge, who died early last summer, greatly regretted by all who knew him. The departure from among us of so many prominent men at this early period of our organization, is a calamity, indeed. I should suggest that the Association take proper action in this matter. That this meeting will be conducted with energy, in the best interests of the profession, I feel assured.

The remainder of the morning session was occupied with the reading of the minutes, admission of new members, and the transaction of other business.

AFTERNOON SESSION.

On the reassembling of the Association, Dr. J. L. Cabell, of Virginia, read his paper

On Sanitary Conditions in Relation to the Treatment of Surgical Operations and Injuries.

He said that he would have special reference to external and local conditions, rather than individual peculiarities of temperament. After alluding to many conditions, he referred to the statement of Dr. W. A. Hammond, that he had noticed that wounds heal with greater rapidity when sunlight is allowed to reach them, than when they are covered, but the speaker thought the accuracy of this view might fairly be questioned, in view of the amount of evidence as to the rapidity with which wounds heal under certain antiseptic dressings; but as to the general sanitary value of sunlight there can be no doubt. Purity of the air, water, and food were then noticed.

The plan suggested by Stephen Smith, of New York, by which the primary or anti-pyretic may, by the use of preliminary antiseptic treatment, be extended long enough to give time for the subsidence of shock, while inflammation and traumatic fever are averted, was then alluded to. This primary period may sometimes be extended for a week or longer.

Many statistics were given, to show the influence of septic diseases on the mortality after operations. The Pennsylvania Hospital, in Philadelphia, was given as an illustration of the great triumph of hospital sanitation. From 1875 to 1879, there were performed 108 amputations on 100 persons; of this number 17 died; five deaths took place within 36 hours; four were from tetanus; two from exhaustion, etc.; three from secondary hemorrhage; two from delirium tremens and one from cerebral effusion. During the five years referred to, there was not a single case of pyæmia. This result is attrib-

uted to the perfect forced ventilation by the fan, to scrupulous cleanliness, the free use of carbolic acid, and to the system of dressing wounds with flowing water. In the same Institution there were, from 1879 to 1882, four deaths from pyæmia, and one from diffuse cellulitis, out of 28 amputations. The fatal cases were cases of "Railroad crush," which goes far to relieve the hospital from the opprobrium of so large a percentage of deaths from septic diseases.

In the Episcopal Hospital, in this city, there were during the past seven years 80 amputations, with 17 deaths, only one of which was from pyæmia.

In regard to amputations in private practice and Cottage hospitals, the Doctor said the statistics of amputations in private practice and in cottage hospitals, in rural districts, when compared with those of the city hospitals of the usual capacity, due allowance being made for various other influences that determine the results of operations, do not warrant the sweeping conclusion that large hospitals, even those constructed on the block system, with several stories, are necessarily liable to outbreaks of septic diseases, or that the mortality must necessarily be greater than in private practice in the same localities, and among the same classes of the population.

The observed sanitary defects of any given hospital will almost certainly be found to be due to faulty location, faulty plan of construction, or to remediable defects of administration. Septic diseases are, indeed, likely to arise in a ward, whether of a large or small hospital, in which a number of surgical cases with open wounds are brought into proximity with each other; but if overcrowding be prevented, it is possible to prevent the spread of these diseases by adequate ventilation and perfect cleanliness in its most comprehensive surgical sense.

In order to prevent the occurrence of septic disease in wards where there are patients with open suppurating wounds, they should be diluted with non-surgical cases. Cleanliness, in its most comprehensive sense, must be enforced; no sponges should be allowed in the wards; no person who has spent some time in the dead house should be permitted to come into a surgical ward, much less assist in any operation, until he has been thoroughly washed and has changed his clothing; patients with fetid ulcerations, especially of a cancerous nature, should be isolated; not more than half of the patients in any ward should have suppurating sores, and under all circumstances, overcrowding must be avoided.

A large part of the paper was devoted to the subject of antiseptics in the treatment of wounds, and especially in ovariectomy. The following were the conclusions which the Doctor presented:—

Septic complications have heretofore been the most fruitful causes of mortality after operations in hospitals, where their malignant effects are observed after secondary, as well as after primary amputations.

Much may be done to prevent the development of septic poison by careful and untiring attention to sanitary precautions, including all the details of personal and hospital hygiene.

After securing all that can be accomplished by patient and scrupulous attention to sanitary arrangements, with a view to render the atmosphere of a hospital comparatively aseptic, there is good reason to believe that an additional protection of great value may be derived from the use of antiseptic precautions practiced in conformity with the Listerian principle.

"Listerism," practiced *de rigueur*, while not so essential in cases of amputation, where it may often be superceded by drainage and perfect cleanliness, has achieved results in operations on joints and in treatment of "abscesses by congestion," which have not been paralleled by any other system of treatment.

The preponderance of evidence is in favor of its utility in ovariectomy and abdominal sections generally, although marvelously good results have been obtained without special antiseptics, by a careful attention to other sanitary arrangements.

DISCUSSION.

Dr. David W. Yandell, of Kentucky, said that since Dr. Keith's report of twenty seven cases operated on without the spray, mentioned in Dr. Cabell's paper, he had added forty more with as good success as when he employed the spray. That although Dr. Keith had abandoned the spray he did not think that he had abandoned Listerism altogether, for while in a large number of cases he used no formal antiseptic, yet he used sponges dipped in hot water, and they were sometimes dipped in a carbolized solution. Dr. Keith considers thorough cleansing and drying of the abdominal cavity, and where this cannot be done, the introduction of a drainage tube, of greater value than Listerism. Mr. Tait uses the same plan.

Mr. Keith, although he had given up the use of Listerism in ovariectomy, still uses it in other operations, as in opening abscesses, removing breasts, etc.

Dr. R. Beverly Cole, of San Francisco, thought that Dr. Cabell's paper was not entirely without prejudice. He quoted Mr. Lister as saying, at the International Congress, "I have never thought, from the beginning, that this system of mine was adapted to ovariectomy, and so impressed was I with this belief that when Dr. Keith informed me of his intention to adopt it and introduce it into his practice, I strongly dissuaded him from it." He thought that the Doctor had regulated his statistics to suit his theory. He did not know that he would be any more free from this than any other man. He said that of the fifteen gentlemen who took part in the discussion of this subject before the International Congress only two came out positively in the support of Listerism. These were Mr. Spencer Wells and Mr. Thornton.

Dr. Letiévant, in a paper read, said, "I am satisfied that this theory of microscopic organisms is not the correct one. He states that when called to examine the ventilation at the Hotel Dieu at Lyons, he found the maternité surrounded by the dissecting rooms, the operating theatre, the chemical theatre and the surgical wards, yet there has never been an epidemic of puerperal fever or other infectious disease incident to the child-bearing patient. He asks, 'If there be

anything in this theory why have we not had an epidemic of these diseases?'"

Dr. H. M. Campbell, Ga., had an experience of forty years' successful practice without the use of carbolic acid. He mentioned the operation of lithotomy as one in which great harm would be caused by closing the wound and treating it according to Lister's plan. "May we not," said he, "be mistaken in thinking that suppuration is caused by microscopic germs?" He thinks that there is a chance for a new explanation. There is nothing more established than the old saying, "Where there is irritation there will be flow"—there is congestion, the result of irritation. He believes that what occurs in suppuration is this: A sensitive part of the body is injured, the delicate sensory nerves are involved. These nerves radiate and transmit influences to the spinal centre, which is in intimate relation with the nerves controlling the blood vessels in the injured part. Thus we have all the apparatus for reflex irritation. We know that suppuration is dependent almost invariably upon the increased amount of blood in the part.

What better means have we of lessening irritation and suppuration, than cold water, a sedative to the part? What better than sedatives and opiates internally?

Dr. J. W. S. Gouly, New York, has always been a consistent anti-Listeric surgeon. In a large hospital practice, for twenty-three years, he has never used the Listeric plan. He had never treated a single wound, after amputation, by closure of the wound and the use of antiseptics. If it be true that the unfavorable symptoms which follow certain operations in conditions of this system are due to the presence of bacteria in the blood and in the wound, the Listeric plan, in his opinion, was the wrong one. It may reach the micrococci in the wound, but how is it to reach those in the blood and lymph? He doubted very much if the spray would prevent their entering the wound if they were in the atmosphere. In reference to this plan of Lister's, he has every proof that it is not Mr. Lister's. He has seen documents going to show that a Frenchman, Dr. DeClat, had, as far back as 1863, proposed the use of antiseptics in the treatment of wounds. He applied carbolic acid, gave it by the stomach, bowels, and by hypodermic injection, with the object of killing bacteria in the blood. This the speaker thought to be a dangerous practice, and of doubtful utility. He had observed several cases of poisoning due to the use of carbolic acid.

While not a Listerist, he was, like every good surgeon, a sound antiseptist. He believed in keeping the parts perfectly clean, in using water and other substances. Alcohol diluted with water has, for twenty years, been a favorite with him. All give quinine. What is quinine but a parasiticide? All use tincture of the chloride of iron and other preparations of iron; these are antiseptics. No good surgeon can be otherwise than an antiseptist. I cannot conceive of any one getting good results from closing wounds after amputation and excisions of tumors. He did not think that Listerism was going to die. It was dead. Few surgeons would long continue to use it.

Dr. R. A. Kinloch, Charlestown, thought that

some of his friends did Mr. Lister and his method much injustice, when they talked about closing wounds, as we know that drainage is a part of the practice insisted on by Mr. Lister. The illustration of his friend in regard to the operation of lithotomy, I consider rather far-fetched. When we come to this matter of carbolic acid, we find that if there be any objection to it, it is to the spray. If carbolic acid does no good, how many are ready to say that it does harm? The mortality has been lessened since the use of Listerism. The very gentleman (Mr. Keith), who excludes the spray from ovariotomy, uses it in other operations. There may not be as much danger from putting the spray into a joint or into the abdominal cavity, but if it does no good, why does he use it? Listerism has accomplished many triumphs. It is not dead. He believed that we should yet hear more of it.

THURSDAY, JUNE 1st. MORNING SESSION.

The discussion of Dr. J. L. Cabell's paper being resumed, Dr. Chas. B. Nancrede, of Philadelphia, said that he thought no one who had faithfully tried this antiseptic system would speak of it as some of the gentlemen had done. He referred to the experience of Nussbaum, who, after having tried every other means of treating wounds, adopted strict Listerian methods. There was an immediate lowering of the mortality. On returning to his old methods, the previous bad results were obtained.

Bardeleben and Billroth have performed some 300 or 400 amputations, without antiseptics. The mortality was about 29 per cent. Taking about the same number of amputations, of equal gravity, performed by Nussbaum, Volkman and others, with the antiseptic system, the mortality was 4.4 per cent.

McCuen, in between 500 and 600 osteotomies had precisely three deaths; one from diphtheria, one from meningitis, and one from some cause which he could not recollect, but it was not from any septic trouble. He had tried the antiseptic method for several years. He stopped using it for several years, but he is now going back to it.

Dr. Geo. W. Gay, of Boston, Mass., had used it more or less during the past five years, in one of the largest hospitals in Boston. He thought there was no way in which a wound could be freed from odor, or profuse suppuration checked so quickly, as by the antiseptic dressing. The advantage of Listerism in ovariotomy has been fully demonstrated. He thought that the present success of operations on the joints was due, principally, to the use of antiseptics.

Dr. R. Beverly Cole, of San Francisco, denied most emphatically, both to Mr. Lister and his method, any credit, in having rendered the opening of joints, and particularly the knee joint, admissible. Dr. E. S. Cooper and himself had practiced free opening of the joints for the past 25 years, in cases of suppurating joints, and also for the removal of floating cartilages. He had no recollection of losing a single case, and yet this was before the Listerian system.

Dr. D. W. Yandell, of Kentucky, had performed ovariotomy twelve times, without the spray, and only one died, but in a number in which he used the spray several died; but he did not say that deaths occurred because he used

the spray, any more than that the others recovered because he had not used the spray.

Prof. Moore, of Rochester, N. Y., would go a step further than Dr. Yandell, and say that he thought the reason Dr. Yandell's cases had died, was because he had used the spray. He had shown in an experiment, by allowing the spray to fall on a piece of plate glass, and examining the glass afterwards, that the spray collected a large quantity of motes from the air, and deposited them on the glass. He thought the steam atomizer a most ingenious apparatus for spoiling the peritoneum.

Dr. J. W. S. Gouley, of New York, had within the last ten days opened a perfectly healthy knee joint for the removal of a needle. The patient promptly recovered. He had treated other cases of wounds of the joints, without Listerism, with equal success.

Dr. J. L. Cabell, of Virginia, with a few remarks, then closed the discussion.

Dr. Moses Gunn, of Chicago, Ill., presented the next paper on

The Treatment of Fractures of the Skull, Recent and Chronic, with Depression.

After a thorough study of the subject, he presented the following conclusions:—

1. In all recent fractures with depression, whether simple or compound, even though entirely without symptoms of compression, if there is reason to believe that the internal table is depressed, and if there are no symptoms of marked concussion or collapse, elevation of the depression should be promptly effected.

2. In chronic cases, as soon as positive, even though comparatively slight symptoms of cerebral irritation present themselves, a disk of the cranial walls, intended to include the irritating point, should be removed with a trephine of requisite size.

3. All operations and dressings should be conducted on strict antiseptic principles.

DISCUSSION.

Dr. R. J. Lewis, Philadelphia, thought that it should be considered an axiom in surgical procedure that the extent of mechanical depression should more influence the surgeon in regard to operative interference, than the symptoms of compression, for the symptoms of shock and concussion may mark the ordinary symptoms of compression. If symptoms of compression are waited for, we shall often leave undone operations that should have been performed early.

Prof. E. M. Moore, Rochester, N. Y., never used the trephine if he could avoid it. He thought that from the tearing of the vessels of the diploë, which it caused, it favored septic poisoning. In dressing wounds of the scalp he utilized the hairs in bringing the edges together.

Dr. Hunter McGuire, of Richmond, Va., thought that the advice given by Dr. Gunn, that every depressed fracture, even if it is simple, should be elevated, is right dangerous doctrine. He thought that to Dr. S. D. Gross, more than to any other man, we are indebted for encouraging operative interference in compound fracture of the skull. To this almost the whole surgical world agrees, but to say that it is proper to operate in every simple depressed fracture, when no

symptoms of compression or irritation are present, is giving to every young surgeon a license to use the trephine, which would be exceedingly dangerous. If the fracture is a simple one, and the depression is not sufficient to cause symptoms of compression, it is better to wait and see if the brain will not be able to accommodate itself to this condition. He had seen a depression of one inch without any symptoms of compression.

Dr. J. W. S. Gouley, New York, described the case of a soldier in which a punctured wound of the skull was produced by the lock of a gun. He was insensible when first seen. Within two hours the trephine was applied and all the fragments were removed. Beneath the disk of bone a clot of blood was found. The depression of bone was very slight. The symptoms were thought to be due to the effusion of blood more than to anything else. In this class of cases, even if the symptoms are not well marked, he thought it wise to operate within the first thirty-six hours. He did not advocate interference in all cases of fracture, but in cases of so called punctured fracture, where there is reason to believe that the internal table is fractured. He had performed the operation a number of times with success.

He described a second case; a miner, who had been struck on the head by an angular piece of coal. He was seen only five or six days after the injury, and complained only of sore head. A small wound was found and an exploratory operation was advised. The scalp was divided by a crucial incision and there was found a slight depression. He trephined this man and removed a number of fragments which had been pressing upon the dura mater. The bone at the seat of the injury was rather white, as though it were dead or going to die. The whiteness extended, and within eight weeks a large amount of dead bone was removed. The death of the bone was thought to be due more to the original injury than to the use of the trephine. He had seen another similar case.

The Doctor described another case of fracture of the skull, two inches above the external angle of the left eye, caused by a brick-bat. The depression was large enough to allow the introduction of the tip of the finger. He did not trephine. This man is in good, general health, but within six months after the injury he was laboring under a mild form of insanity, which is now no worse. The depression still exists.

Dr. H. F. Campbell, Ga., regarded trephining as one of the most capital of all capital operations. He was not willing to admit that because the external plate was depressed, the internal plate must necessarily be broken. As had been said, punctured fractures should be trephined, but he believed that was a part of the old rule, which said "trephine when you see symptoms, but do not trephine when you do not see symptoms, *except* in cases of punctured fractures." He had had bad results from not operating in such cases. He thought the brain could withstand all kinds of aggression but compression. He had been called to see a man with an axe wound in the head, exposing the brain, and found him sitting by the fire, eating his breakfast out of the frying pan. In this case the man recovered without any bad symptoms.

Dr. W. T. Briggs, Nashville, had used the trephine a great many times. He had never regretted using it, but had regretted his failure to use it in some cases. He had frequently seen secondary effects follow untreated fractures of the skull. He did not believe that symptoms of compression arising from pressure upon the brain from depressed bone were sufficient to demand operation, because all know that the brain will accommodate itself to this depressed bone. Pressure from an accumulation of blood was a different matter. He would look for and be guided by the symptoms of irritation of the brain. A boy received an injury of the right parietal bone; there was no apparent depression. He suffered from shock and concussion, which soon passed away. He began to have twitching of the left hand and left side generally. The patient was trephined, although there were no symptoms of fracture until the scalp was incised, when a fissured fracture was found. The symptoms of irritation had been caused by a spicula of bone. The Doctor advised an exploratory incision in doubtful cases. He regarded trephining (including under this term the use of the trephine, elevator, Hey's saw, etc.) as one of the safest of all capital operations.

Trephining is also called for in bruises of the skull, to allow the escape of inflammatory products.

Dr. R. A. Kinloch, of Charlestown, thought an exploratory incision increased the danger, and thought that the presumption that the patient was going to suffer from secondary complications was not strong enough to justify it. Autopsies had often shown that in fracture of the inner table, the edges have been rounded off, and scarcely a remnant of the injury is left. He was a warm advocate of conservative surgery in these particular cases.

Prof. S. W. Gross, of Philadelphia, said he should have formulated Dr. Gunn's conclusions in the following manner: He should have accepted the second proposition unreservedly. He would modify the first conclusion, to read:—

"In all recent fractures, with depression, if the latter be moderate, whether simple or compound, the patient should be left alone. If, however, fixed and severe pain at the point of injury, febrile excitement, increase of local temperature and a commencing puffiness of the scalp supervene within a few days after the accident—signs which are indicative of depression of the internal table and the development of pachy-meningitis—elevation of the depression should be promptly effected."

In all recent fractures, whether simple or compound, attended with symptoms of compression, the trephine should be resorted to; and the same rule should apply, whether symptoms be present or not, if the depression be considerable and funnel shaped. Punctured fractures should invariably be subjected to operation.

Dr. D. W. Yandell, of Kentucky, would fully agree with the preceding speaker, if he would add in his third proposition "and the symptoms of compression persisting." All know how fleeting these symptoms sometimes are.

Dr. Moses Gunn, of Chicago, Ill., in closing the discussion, remarked, "I have nothing par-

ticular to add to what I have already said. In the outset, I stated that the propositions which I should submit might not meet with general approval. Indeed, I anticipated that they might meet with general condemnation. The discussion has taken a very wide range, but I want to call attention to one or two points. In the first place, I have made no departure from the rule, in the treatment of punctured fractures, nor have I in the treatment of compound fractures, but in the treatment of simple fractures with depression and without symptoms, I have gone a step in advance of the rules laid down by our distinguished presiding officer.

The Treatment of Transverse Fracture of the Patella, with the Object of Producing Bony Union,

was the title of the next paper, prepared by Dr. R. J. Levis, of Philadelphia.

The speaker objected to the use of the ordinary apparatus for the treatment of fracture of the patella, that they presupposed grooves above and below the patella, which did not exist in nature. These grooves could only be made by injudicious pressure. This pressure above the bone would irritate the quadriceps and tend to draw the upper fragment upward, and below the pressure on the ligamentum patellæ would tend to draw the lower fragment downward. The pressure would at the same time tilt the fragments forward. Again, on account of the obliquity of the upper edge of the patella, it is difficult to bring the fragments in contact, for when the fragments are in contact on one side, they may be a third of an inch apart on the other.

One of the most important factors in obtaining osseous union is the restoration of the continuity of the periosteum. The reason fracture occurs most frequently at the lower third, was said to be due to the fact that the tendons of the biceps muscle and the ligaments of the patella terminate at this point, and that there is in this position a leverage over the end of the femur.

In the treatment of this injury, the Doctor advocated the use of Malgaigne's hooks, or rather the modification made by himself, which consists in separating the double hook of Malgaigne's into two.

Had never been obliged to remove the hooks. Never introduced the hooks before the tenth day. The case should be treated with cold lotions and pressure until the inflammation subsides and the time for introducing the hooks arrives. The patient should be kept under treatment for three or four months.

(The doctor then presented for examination two cases of fracture of the patella, which had been treated with his modification of Malgaigne's hooks, in which bony union had apparently occurred).

The discussion of this paper was postponed until the afternoon session. The remainder of the morning session was occupied in the reading of the records of a case by Prof. E. M. Moore, of Rochester, N. Y. The following is a condensed description of the case.

November 12th, 1875, Peter M., a convict in Auburn prison, fell from a wall, causing dislocation of the hip upon the dorsum ilii. It was reduced by manipulation. Three weeks

later he fell out of bed and again dislocated the joint. This time it could not be replaced.

December 25th, pulleys, in combination with manipulation, were tried, but failed. The toes were exceedingly everted, the limbs shortened two inches, the head of the femur presenting forward instead of backward, lying just behind the anterior superior spinous process. The limb was peculiarly useless, for in addition to the shortening, the motion of the knee joint was at right angles to the normal line.

December 7th, 1877, two years after the accident, the Doctor attempted an operation for its relief. He desired, if it were possible, to bring the head of the bone into the ischiatic notch by manipulation. This would bring the knee almost to the usual line, and would lessen the shortening. After the lapse of two years he would not, of course, make the attempt to bring the bone into the acetabulum. He hoped to be able to divide the adhesions subcutaneously, by means of a peculiarly shaped knife which he had prepared. The patient was etherized and pulleys applied, but a little examination showed that there was bony ankylosis. A large osteophyte enclosed the head and secured it to the ilium.

He now made an incision below the trochanter, barely large enough to permit the introduction of the finger down to the thigh bone. The bone was cut through about one-fourth of its thickness by a metacarpal saw, both on the anterior and posterior surface. The bone was then fractured, rotated to its proper position, and a weight attached to it. The leg was brought down to within half an inch of its normal length. It was kept in this position one month. At the end of this time his condition was good. The weight was now discontinued and the limb placed on a double inclined plane. During the whole time a drainage tube was kept in the wound. Other openings formed. The treatment consisted of quinine, stimulants, good diet, and the application of poultices. The angle of the splint was daily changed, in order to create a false joint. February 3d, 1878, an apparatus was applied to keep the limb in proper position, and he was allowed to walk on crutches.

The Doctor then lost sight of him until July 22d; his sentence having expired, he was brought to St. Mary's hospital, at Rochester, where he remained until July 30th, when he died, from pulmonary disease. At the autopsy there was found that, although the bone had been separated an inch and a half, the whole space had been filled with osseous deposit. It seemed to the speaker that the growth could have been due only to a rapid and enormous production of granulation tissue, which also, in its turn, furnished an easy opportunity for the deposit of bone salts. It is marvelous that the form and size of the bone should have been so well preserved in this intermediate space.

At one time this patient presented a syphilitic eruption, for which he was given iodide of potassium and some mercury.

The Doctor then presented the specimens from this case, which were examined with great interest.

AFTERNOON SESSION.

The discussion of Dr. R. J. Levis' paper was

opened by Dr. T. G. Morton, of Philadelphia. He first used Malgaigne's hooks in 1873. The result was perfect. He had modified the hooks by separating them into a lower and an upper half, to facilitate their introduction. He saw no use in leaving the hooks longer than sixteen or seventeen days. He never applies them under four days. There are many cases where the hooks should not be used, as, for instance, in comminuted fracture.

(The Doctor here presented a case of comminuted fracture treated by the old method, in which there was wonderful union, the man having as good use of one limb as of the other.)

Where approximation could be made by slight pressure he would not think of using the hooks.

Dr. Wm. A. Byrd, of Illinois, had used, with success, Martin's rubber bandage, first applying a well padded splint to the back of the leg, and then making figure-of-eight turns around the joint and bringing circular turns around the outside of the joint, to counteract any tilting.

Dr. Bontecou had used extension by adhesive plaster, successfully.

Dr. H. F. Campbell, of Georgia, described several cases of the fracture, occurring in his practice, and also a case of congenital abscess of both patellae, in which the boy had complete use of his limbs.

Dr. R. J. Levis, of Philadelphia, considered it impossible to penetrate the joint with the hooks. There was very little pain attending their use. He employed no particular dressing, but was careful to keep the bed-clothing from displacing them. No other method of treatment will secure such results. He had never had an opportunity of making a post mortem examination of any of these cases.

The discussion of Dr. E. M. Moore's paper was then taken up.

Dr. H. F. Campbell, of Georgia, inquired if the great proliferation of bone might not have been due to some of the peculiar traits of syphilis.

Dr. J. Ewing Mears, of Philadelphia, described a case in which he had performed subcutaneous osteotomy, for the relief of severe pain following an unreduced dislocation of the shoulder joint, and with the hope of establishing a false joint. The pain was relieved, but the autopsy, a year later, showed that osseous union had occurred.

Dr. E. M. Moore, of New York, described another case, in which the attempt to make a false joint at the hip, was followed by bony union. He did not think that syphilis had anything to do with the production of bone in the case he had described.

Dr. J. R. Weist, of Richmond, Ind., then read a paper entitled

Foreign Bodies in the Air Passages.

The paper contained the history of 1000 cases (900 of them never having been before reported) arranged in tabular form. They were collected by personal correspondence with physicians in all countries. From a careful study of these cases Dr. Weist arrived at the following conclusions:—

1. When a foreign body is lodged either in the larynx, trachea or bronchia, the use of emetics, errhines or similar means should not be em-

ploied, as they increase the sufferings of the patient, and do not increase his chances of recovery.

2. Inversion of the body and succussion are dangerous, and should not be practiced unless the windpipe has been previously opened.

3. The presence simply of a foreign body in the larynx, trachea or bronchia, does not make bronchotomy necessary.

4. While a foreign body causes no dangerous symptoms, bronchotomy should not be performed.

5. While a foreign body remains fixed in the trachea or bronchia, as a general rule, bronchotomy should not be practiced.

6. When symptoms of suffocation are present, or occur at frequent intervals, bronchotomy should be resorted to without delay.

7. When the foreign body is lodged in the larynx, there being no paroxysms of strangulation, but an increasing difficulty of respiration, from œdema or inflammation, bronchotomy is demanded.

8. When the body is movable in the trachea, and excites frequent attacks of strangulation, bronchotomy should be performed.

DISCUSSION.

Dr. H. F. Campbell, of Ga., Dr. J. Ewing Mears, of Philadelphia, and Dr. Chas. B. Nancrede, of Philadelphia, took part in the discussion, and described additional cases.

Dr. Wm. T. Briggs, of Nashville, Tenn., read a paper on

The Antiseptic Treatment of Wounds after Operations and Injuries.

The speaker made an elaborate analysis of his subject, and embodied the result of his researches in these conclusions:—

1. The germ theory of wound infection is not established.

2. The antiseptic treatment of wounds after operations and injuries is not limited to Listerism or any other special method, but is based upon broad general principles.

3. Antiseptic surgery embraces every condition or agent that tends to prevent putrefactive changes in wounds, or to remove or neutralize the effects of such changes when they have occurred.

4. All wounds are healed by reparative inflammation.

5. All wound-accidents are the result, either directly or indirectly, of destructive inflammation.

6. The antiseptic treatment of wounds, properly considered, consists, first, of such means as will restrain inflammatory action within reparative bonds; and, second, of such means as will subdue excessive action, and remove or neutralize the effects of destructive inflammation.

DISCUSSION.

Dr. E. M. Moore, of New York, fully agreed with Dr. Briggs, and described a plan of operating with exclusion of the air, by allowing carbonic acid to enter the place of operation, when it would, being heavier than the air, pre-occupy the space. He had performed ovariectomy four times in this way, but two of the patients had died. He intended to continue his experiments.

The Doctor also referred to the fact that he had, on one occasion, seen a mass of coagulable lymph, as large as a filbert, lying in a wound from which the air had been excluded by allowing the bandages to become soaked with blood.

Dr. H. F. Campbell, of Georgia, spoke of the value of cinchonizing all patients with wounds. He bases its use upon his theory of suppuration. He considers that its value is due to the fact that quinine destroys spinal reflex excitability. He thinks that by quieting the peripheral excitability with carbolic acid and opium, and the centric reflex excitability by quinine, we have the best possible conditions for repair of wounds.

The Association then adjourned.

FRIDAY, JUNE 2—MORNING SESSION.

At the executive session the following resolutions were presented by Dr. D. W. Yandell, and adopted:—

WHEREAS, The American Surgical Association, in annual session at Philadelphia, on June 2d, has learned with deep regret that the Senate Committee on Appropriations has reduced the annual appropriation for the museum and library of the Surgeon General's office, from \$10,000, as passed by the House of Representatives, to \$5000; therefore,

Resolved, That the President and Secretary are hereby instructed to communicate to the U. S. Senate the views of this Association, as expressed at this meeting, in reference to this proposed reduction, and to state that, in the opinion of this body, such reduction would be extremely unwise, by hampering the growth of the museum and library, in which the people of the whole civilized world are deeply interested, because through these collections and the emanations from them, the knowledge of the science and art of medicine, and its application to the relief and cure of disease and injury, are vastly increased and diffused for the benefit of all mankind, and now to cripple this work, which the Government has in its power to develop, by a reduction of appropriations, would be to retard the unfolding of resources to successfully combat disease and injury, and to impair the growth of an institution which is everywhere regarded as an enduring monument of the philanthropic liberality of the American nation.

Resolved, That these collections, which are unrivaled in their richness and usefulness, are a source of just national pride, and, as they are a benefit beyond price to the whole people, for all men are subject to disease and injury, they are especially worthy of the fostering and liberal care of a government of the people.

Appropriate resolutions in relation to the deaths of Lenox Hodge, J. C. Hughes, W. W. Green, H. H. Brock, J. T. Hodgen, and J. R. Wood, Fellows of the Association, were adopted and ordered to be placed on the minutes.

The officers elected to serve during the ensuing year were: President, Prof. S. D. Gross, M.D., LL.D., D.C.L.; Vice Presidents, Dr. E. M. Moore, Rochester, N. Y.; Prof. Moses Gunn, Chicago, Ill.; Secretary, Dr. J. R. Weist, Richmond, Ind.; Treasurer, Dr. John H. Packard, Philadelphia; Recorder, Dr. J. Ewing Mears, Philadelphia; Council, one year, Dr. R. Beverly Cole, San Francisco; two years, Dr. George

W. Gay, Boston; three years, Dr. Hunter Maguire, Richmond, Va.; four years, Dr. H. F. Campbell, Georgia.

The first paper read was by Dr. J. C. Hutchinson, of Brooklyn, N. Y., on Diseases of the Hip Joint, which elicited some discussion.

Dr. H. F. Campbell, of Ga., then presented a synopsis of a paper on the

Ligation of Arteries for the Cure of Gangrenous Inflammation.

The speaker had tried this method with successful results, and from his experience, he said that no limb which was the seat of traumatic, gangrenous inflammation should be amputated until after ligation of the principal vessel had been tried.

DISCUSSION.

Dr. Bontecou asked if the same results could not be obtained by incisions into the deep fascia? If the pressure can be relieved by slitting open these structures which cause compression, will not the same results be obtained without the risk of secondary hemorrhage?

Dr. H. F. Campbell did not think that this would give relief, for the compression was not from simple swelling of the limb, but every muscle and every fibre of the muscle is distended.

Dr. Bontecou reported a case in which a man was brought into the hospital with his limb covered with blebs. He intended to amputate, but finding that the condition was the result of effusion, he made free incisions, and the man got well.

A paper, entitled

Impacted Intra-capsular Fracture of the Neck of the Femur—Bony Union,

being a description of a case by Dr. Senn, of Milwaukee, was read by the Secretary.

March, 1880. A lady, 75 years old, had fallen on the sidewalk, striking the left hip. On admission to the hospital there was slight swelling about the hip. The left foot was everted; accurate measurement showed shortening of one-third of an inch. On rotation of the limb the arc of the circle described by the trochanter major was greatly diminished. No crepitation could be elicited, nor could the limb be brought to its normal length. The diagnosis was impacted intra-capsular fracture of the neck of the femur, and the patient was placed in the recumbent position, and the limb supported on each side with sand bags. This treatment was continued for nearly three months. She was then placed on crutches. After the third week the shortening gradually increased, until it reached an inch. At the end of a year she could walk well by the use of a cane.

She was again admitted in February, 1882, suffering from catarrhal pneumonia, from which she died.

At the autopsy, the capsule, and especially the upper portion, was thickened and firm, and bridges of connective tissue connected the line of fracture with the anterior portion of the ligament. The line of fracture did not extend beyond the insertion of the capsular ligament. The line of fracture presented a serrated appearance. Longitudinal sections revealed a white

line of dense, compact bone. This was confirmed by the microscope.

The specimen from this case was presented to the Association for examination.

Dr. Moses Gunn, Ill., had examined the specimen, and thought that he traced the line of fracture running up outside of the capsular ligament. He thought that the head of the bone had received its blood supply in this way.

Prof. S. D. Gross had never seen bony union after intra-capsular fracture of the neck of the femur, and never expected to see it.

Dr. Moses Gunn, Dr. H. F. Campbell, Dr. Bontecou, and Dr. W. T. Briggs expressed the same opinion.

Dr. J. Ewing Mears, Phila., presented the results of some experiments he had made in connection with Dr. Morris Longstreth, Pathologist of the Pennsylvania Hospital, on the

Intra-peritoneal Method of Treating the Pedicle by the Ligature, after Ovariectomy.

He first described the various intra and extra-peritoneal methods of treating the pedicle, and then described the first experiment, which consisted in removing both ovaries of a rabbit, and on one side tying the pedicle with catgut, treated by the ordinary process, and on the other with catgut which had been submitted to a solution of chromic acid (1 to 5) for three weeks. Particular stress was laid on the fact that the ligatures were drawn only tight enough to control hemorrhage, and not tight enough to prevent the circulation in the smaller vessels. The rabbit was killed at the end of two weeks, and both ligatures were covered with lymph, a bridge of lymph extending across the groove made by the ligature and uniting the proximal and distal extremities of the pedicle. The raw surface had on one side been covered with lymph, and on the other was adherent to the broad ligament. The distal portion had been nourished in two ways, first by the bridge of lymph and second by interstitial nutrition.

The second experiment consisted in the application on one side of a silk ligature, and on the other of a linen ligature. These had been soaked in a solution of carbolic acid (1 to 20). The animal was killed after four weeks; the ligaments were covered with lymph and were beginning to disintegrate, and between the meshes of the thread wandering cells were found, indicating the manner in which the ligatures disappeared. He thought that two experiments proved nothing, but they might be taken for what they are worth. He and Dr. Longstreth expected to continue the experiments and report at the next meeting.

Dr. Mears presented for examination the specimens showing the results of the experiments.

Dr. Wm. A. Byrd, Ill., had had an opportunity of examining the ligatures after an ovariectomy, and had found them in the condition described by Dr. Mears. He, however, thought better results would be obtained by tension than by leaving a foreign body in the peritoneal cavity.

Dr. Moses Gunn, Ill., thought that if it were proven that nature would cause the absorption of vegetable as well as animal ligatures, it would be something decidedly new.

Dr. J. Ewing Mears had had an opportunity of examining the catgut ligature daily in an ovariectomy in which ligatures were applied, but where the clamp was subsequently required. At the expiration of two weeks the ligature had become a gelatinous soft mass.

After voting resolutions of thanks to the surgeons of Philadelphia, for their hospitality, and to the Committee of Arrangements, for the efficiency with which they had carried out their work, the Association adjourned, to meet next year in Cincinnati, Ohio.

American Medical Association.

The twenty-third session of the American Medical Association convened at St. Paul, Minnesota, on Tuesday, June 8th, with an attendance of over seven hundred delegates and permanent members from all parts of the country.

After prayer, the Permanent Secretary read protests from most of the societies, against the admission of the delegates of the New York State Society, on account of their action in regard to consultation of regular practitioners with homeopaths. The protests were received by members with loud applause. They were referred to the Judicial Council, for action.

Letters of regret from Dr. S. D. Gross, of Philadelphia, and Dr. J. J. Woodward, U. S. A., of Washington, were read.

Dr. P. O. Hooper, of Little Rock, Ark., was then introduced as acting President, and read the annual address, in which he treated of the progress which had been made within the last year in all branches of science, and particularly in medical science. He also dwelt upon the importance of preventing the introduction into communities of contagious diseases, and stated it as his opinion that vaccination should be compulsory in all the States of the Union. He directed attention to the position taken by the New York State Medical Society, which endangered the very foundation of the Code of Medical Ethics, and stated that, as the matter was referred to the Judicial Council, whose decision would be final, he would refrain from saying further. In conclusion, he paid tribute to the President of last year, Dr. J. T. Hodgen, who died recently, at St. Louis, and to the President, Dr. J. J. Woodward, who is in Europe to regain his health.

It was decided to send a message of greeting to Dr. Woodward, by cable. A list of delegates was then read by the Permanent Secretary, after which the Minnesota State Society, in session at St. Paul, were invited to attend the sessions as members by invitation.

A communication from the Woman's National Christian Temperance Union was then read by Dr. N. S. Davis, of Chicago, in which they advocated introducing the study of physiology, anatomy, hygiene, and especially the results of the use of intoxicating liquor upon the human body, as a part of hygiene, in schools supported by public money. This was referred to the section on State Medicine.

The morning session then adjourned, and the delegates of the different States met separately to elect their member in the Nominating Committee.

The Pennsylvania delegation chose Dr. Fricke, of Philadelphia, as their representative, and instructed him to give his vote for the nomination of Dr. Atlee, of Lancaster, for the Presidency.

In a future issue we will give a detailed account of the proceedings.

The Medical Education of the African Race.

At a meeting of medical teachers and practitioners, called to confer with J. Berrien Lindsley, M.D., LL.D., of Tenn., in regard to the interests of a medical college for colored students, at Nashville, and held at the Hall of the College of Physicians, of Philadelphia, May 8th, 1882, Prof. S. D. Gross was invited to the chair and Dr. J. G. Richardson directed to act as Secretary.

Dr. Lindsley, at the request of the chairman, stated that the Congregational, Baptist, and Methodist churches of the North generously maintained, in the late slave States, about twenty-four institutions of learning for the benefit of the colored people, at an annual expense of nearly \$300,000. Among these institutions were three medical colleges, one at Washington, one at Raleigh, and one at Nashville. The last of these, the Meharry medical department of central Tennessee College, had buildings costing \$20,000, and was, in his opinion, decidedly the most favorably located.

His object was to gain the endorsement of representative physicians in the North, for the plan of creating a National Board of Trusts, chartered by Congress, for the medical education of colored people, which should be empowered to promote this most desirable object, by aiding the most promising educational establishment of the kind in the South, and further defraying the necessary expenses of those young persons of African descent who should display superior intellectual capacity, in Northern or European schools, as might best serve the great end in view, the elevation of the negro race. It being further designed that special attention should be paid to the complete preparation of colored physicians as missionaries and explorers in Africa.

Dr. H. Hartshorne highly approved of the proposed plan as explained by Dr. Lindsley, and only feared that unless the great advantages of his scheme were very fully understood, it would be difficult to induce all the various denominations interested in this missionary work to thus unite together for its successful prosecution.

Dr. Edward Hartshorne considered Nashville a great intellectual missionary centre, and that if we could establish a good medical school there, the best colored men from the whole Southwest would flock to it, and from these the selected few who developed in advance of their race could be sent, on this well devised plan, to Northern colleges, where the best possible medical training could be secured for them.

Dr. L. D. Harlow remarked that he had been very much interested in this admirable project of Dr. Lindsley's, and was ready to endorse all that he had planned for the elevation of the black people. He sincerely hoped there would be no difficulty in procuring the requisite charter from our national legislature.

Prof. James Tyson observed that his study of the important subject of medical education had rendered him opposed to the erection of any new colleges, but he did not entertain the same objection to fostering an already established institution. For the last four years colored students had matriculated at the University of Pennsylvania, and one of these graduated the past year with an average as high as that of three fourths of the class. Another, who will probably graduate next year, has already passed in Chemistry, with the unusual average of 98 in a possible 100. Only one white student is even reported to have left on account of the admission of these colored men, so that the question is practically settled in regard to the University of Pennsylvania, as it is also in the affirmative, in Harvard University.

Dr. J. Cheston Morris believed that, having lived, formerly, on a plantation in one of the Southern States, he was intimately acquainted with the black man's capacities, and he was satisfied that for the next 20, 40, or perhaps 100 years, but a small proportion of the negroes could acquire the preliminary training necessary for a great physician; until that time, he was convinced that the wisest plan would be to maintain a good medical college in the South, at some central point like Nashville.

Dr. J. Solis Cohen called attention to the fact that in seven years the Meharry school had graduated only 23 students, and urged the advantages of combining the three southern colleges into one strong institution, as soon as possible.

The Chairman, Prof. Gross remarked, that if the negro race could develop a great physician in a hundred years, it would prove its vast superiority to the whites, who had required some two thousand years to accomplish the same feat. He believed that the blacks had capacities which in time will develop to a very high degree, but for the present the negro must have his own schools. Applicants had always been refused at the Jefferson Medical College, and it would probably be a long time before they gained admittance, if they ever did so; he, therefore, cordially approved of the plan of Dr. Lindsley.

Dr. Lindsley said he knew, from his own personal observation as former Health Officer of Nashville, that there were in that city hundreds of colored people suffering for want of proper medical care. This state of things, lamentable as it was, existed generally throughout the South, because white physicians could not attend the blacks out of charity, to the extent they used to do, when amply recompensed for their services by the owners of these former slaves. It was to provide qualified medical attendants from their own people, for these suffering human beings, that he invoked the influence of the 70,000 physicians of America, and the substantial aid of the benevolent public at the North.

Dr. J. G. Richardson suggested that the question now before the meeting was not so much how far the black man could be medically educated? but whether this great experiment, which will certainly be tried, shall be attempted under the most favorable circumstances as contemplated by Dr. Lindsley's plan, or whether the pecuniary

advantages which contributions from Northern philanthropists would procure, shall be frittered away in the incomplete support, of six or eight feeble medical colleges? He, therefore, moved that a committee of three be appointed by the chair, to prepare a suitable endorsement of the proposed National Board of Trusts, for the medical education of the colored race.

Dr. Edward Hartshorne moved that the committee be authorized to add to its number, and invested with power to act for the meeting; which resolution and amendment were carried unanimously, and Drs. H. Hartshorne, Richardson and Harlow appointed on the committee.

On motion adjourned.

JOS. G. RICHARDSON, *Secretary*.

The Code of Ethics.

At the late meeting of the Southern Illinois Medical Association, held at Carbondale, Ill., May 17th and 18th, 1882, on motion, a committee was appointed to draft resolutions expressing the sense of the Association in relation to the existing Code of Ethics, which committee presented the following report, which was adopted:—

"The committee to which was referred the preparation of resolutions expressive of the sense of this Association relative to the Code of Ethics, beg leave to report as follows:—

Resolved, That the Southern Illinois Medical Association regard the Code of Ethics of the American Medical Association as eminently just, being founded on truth and sound principles, and that although we wish to be liberal in attaining that end, we should not lower our standard, or trail it in the dust; but firmly defend the right.

Resolved, That a copy of these resolutions be transmitted to the Secretary of the American Medical Association, and that our delegates to that body be instructed to use their votes and influence to retain the existing code."

On motion, the Secretary was instructed to send a copy of the resolutions to a few representative journals, for publication.

H. R. Guthrie, M.D., L. H. Spencer, M.D., S. W. Marshall, M.D., Committee.

JAMES I. HALE, M.D., *Secretary*.

The Gross Professorship of Pathological Anatomy.

A special meeting of the Alumni Association of the Jefferson Medical College was held May 30th, to take action looking toward the endowment of a Professorship in the College in honor of Professor Gross.

Dr. Addinell Hewson was called to the chair and Dr. R. J. Dunglison presented the report of a committee which had been appointed to consider the subject. The Committee recommended the adoption of the following resolutions:—

Resolved, That in appreciation of the great services of Professor Samuel D. Gross to medical teaching in this country, a memorial professorship of Pathological Anatomy be founded by this Association, to be known by his name.

Resolved, That a permanent committee of five be appointed, with power to increase it to a number not exceeding nine.

Resolved, That an Auxiliary Committee be appointed by the Permanent Committee, subject to the approval of the Executive Committee, from the non-resident Alumni.

Resolved, That all vacancies in either committee, shall be filled by the Permanent Committee, subject to the approval of the President.

Resolved, That the Executive Committee shall appoint as trustees of the fund for the professorship, a reliable trust company in the city of Philadelphia.

Resolved, That when, in the opinion of the committee appointed by the Executive Committee of the Alumni Association, the sum be sufficient, a professorship be endowed, on such terms as will best attain the objects proposed by these resolutions, by a sub-committee, of equal numbers of the Executive Committee and the Trustees of Jefferson Medical College.

With the exception of the fifth resolution, which relates to the Trustees, and which was referred to the Executive Committee with power to act, the resolutions were adopted.

The committee also reported that the sum of \$2000 was promised by an Alumnus at a late meeting of the Executive Committee, as soon as the fund should reach \$8000.

The committees referred to in the resolutions will be appointed by the chairman, hereafter.

The Tenth German Medical Congress

will open in Berlin, June 30th, and close July 2d. The following subjects will mainly be debated:

1. Civic regulations for physicians. 2. Feeding of infants. 3. Necessity of prolonging medical studies to five years. 4. Exhibition for hygiene and of measures etc., in cases of accident. The latter affair will have to be dropped, as the building of the exhibition and a great deal of material which had been stored already in the building were destroyed by fire, May 12th. The loss is said to reach a million dollars.

Dr. Gray.

At a recent meeting of the Medico-Psychological Association of England, the president referred to the attempted assassination of Dr. Gray, of the Utica Asylum, and a resolution of sympathy was unanimously adopted.

QUERIES AND REPLIES.

Subscriber, Mich.—Dr. John J. Reese, Professor of Toxicology in the University of Pennsylvania, says that he has never heard of any toxic effects from oxalate of cerium. Spts. of nitrous ether would, no doubt, in excessive doses, produce much the same poisonous effects as sulphuric ether.

DEATHS.

SEARY.—On May 8th, Charles W. Seary, M.D., in the 39th year of his age.

TROMPETER.—Dr. G. Trompeter, a physician of Port Chester, West Chester Co., N. Y., while hurrying to catch a train at that station, late on Friday afternoon, May 6th, fell dead as he reached the platform. The cause of his death was heart disease. He was 32 years of age, and single. He had resided at Port Chester only 10 months.